2024 Watershed Sanitary Survey Update

Cambria Community Services District

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Prepared by

CONFLUENCE
ENGINEERING SOLUTIONS

Acknowledgements

Cambria Community Services District

Tristan Reaper
Program Manager

Cody Meeks
Water Systems Superintendent

Jim Green
Utilities Department Manager

Confluence Engineering Solutions, Inc.

Daniel Heimel, PE, MS
Principal Engineer

Jamie Girouard
Associate Water Resource Engineer

Ben Weaver
Water Resource Engineering Assistant

Table of Contents

List of Tables

List of Figures

List of Acronyms and Abbreviations

AWTP	**Advanced Water Treatment Plant**
CCAMP	**Central Coast Ambient Monitoring Program**
CCR	**Consumer Confidence Report**
CCRWQCB	**Central Coast Regional Water Quality Control Board**
CCSD	**Cambria Community Services District**
D/DBP	**Disinfectants/Disinfection By-Products**
DDW	**Division of Drinking Water**
DWSAP	**Drinking Water Source Assessment and Protection**
EPA	**Environmental Protection Agency**
EWS	**Emergency Water Supply**
GWUDI	**Ground Water Under Direct Influence**
MCL	**Maximum Contaminant Level**
MF	**Microfiltration**
MLE	**Modified Ludzak-Ettinger**
MTBE	**Methyl tert-butyl ether**
NTU	**Nephelometric Turbidity Unit**
PCI/L	**Picocuries per Liter**
PEIR	**Plan Environmental Impact Report**
SLO	**San Luis Obispo**
SMCL	**Secondary Maximum Contaminant Level**
SRC	**Santa Rosa Creek**
SSC	**San Simeon Creek**
SST	**Sustainable Solutions Turnkey**
SWRCB	**State Water Resources Control Board**
SWTR	**Surface Water Treatment Rule**
TCR	**Total Coliform Rule**
TDS	**Total Dissolved Solids**
TMDL	**Total Maximum Daily Load**
US-LTRCD	**Upper Salinas-Las Tables Resources Conservation District**
USGS	**United States Geological Survey**
UWMP	**Urban Water Management Plan**
VFD	**Variable Frequency Drive**
WMP	**Watershed Management Plan**
WRF	**Water Reclamation Facility**
WSS	**Watershed Sanitary Survey**
WWTP	**Wastewater Treatment Plant**

Introduction

Located on the Central Coast of California, near Santa Rosa Creek in the northwest corner of San Luis Obispo County, Cambria Community Services District (District) provides drinking water, wastewater, fire protection, lighting, refuse, parks, recreation, and open space services to the community of Cambria with a population of approximately 6,000 residents. The transient population of second homeowners and tourists increases Cambria's population by roughly 35% on weekends, which equates to a 50,000-100,000 gpd increase in consumption each day. The District's service area spans approximately 3,200 acres. The District's potable water is obtained from groundwater wells located in two coastal aquifers: San Simeon Valley and Santa Rosa Valley Groundwater Basins. The District operates a D2 distribution system and a T3 treatment system.

The District's water system operates under its Domestic Water Supply Permit #04-06-14P-006 issued by the Division of Drinking Water (DDW) on August 15th, 2014. This permit requires the District to conduct a quinquennial sanitary survey of the Santa Rosa and San Simeon Creek Watersheds whenever surface water is within 150 feet of active groundwater wells. Several of the District's wells are classified as groundwater under the direct influence of surface water (GWUDI) due to their close proximity to Santa Rosa and San Simeon Creeks. The Permit includes the following language:

> *The CCSD shall conduct a sanitary survey of the Santa Rosa and San Simeon Creek Watersheds every five years if the wells are used when surface water is within 150 feet of the wells. A report of the survey shall be submitted to the Drinking Water Field Operations Branch not later than 60 days following completion of the survey. The survey and report shall include physical and hydrogeological description of the watershed, a summary of source water quality monitoring data, a description of activities and sources of contamination, a description of any significant changes that have occurred since the last survey which could affect the quality of the source water, a description of watershed control and management practices, an evaluation of the system's ability to meet requirements of the SWTR and recommendations for corrective actions.*

This report serves as an update to the 2015 Watershed Sanitary Survey. The objectives of this sanitary survey update are to:

- Provide a summary of the recommendations of previous sanitary surveys
- Provide a description of the District's water source system
- Provide a description of existing environmental conditions in the watersheds
- Identify existing and future potential sources of contamination in the watersheds
- Provide a water quality and watershed condition assessment
- Provide a description of existing watershed control and management practices
- Provide recommendations for watershed management practices to protect surface water quality within the watershed

Section 1. Summary of Past Sanitary Surveys

1.1 Initial Watershed Sanitary Survey

"Initial WSS" as used in this document refers to the *San Simeon and Santa Rosa Creeks Watershed Sanitary Survey* prepared in 1996 by North Coast Engineering, Inc. for the District. The report follows the recommendations provided by the Watershed Sanitary Survey Guidance Manual (December 1993) prepared by the California/Nevada Section of the American Water Works Association.

This Initial WSS stated that the San Simeon Creek (SSC) and Santa Rosa Creek (SRC) Watersheds exhibit distinct characteristics and land-use patterns. The SSC watershed spans approximately 20,550 acres, while the SRC watershed covers 29,876 acres. The Santa Rosa Creek Watershed is split into two sub-watersheds, the Perry Creek Sub-Watershed and the Santa Rosa Creek Sub-Watershed. This report will discuss details from both sub-watersheds under one name, the Santa Rosa Creek Watershed, unless specifically indicated otherwise. Notably, the Initial WSS discussed the District's Wastewater Treatment Plant's (WWTP) significant upgrades following regulatory orders.

The Initial WSS identified areas in the Santa Rosa Creek Watershed near Cambria vulnerable to potential contamination from urban runoff, especially in areas where oil, grease, and gasoline are present, such as transportation corridors like highways and parking lots. Agricultural activities near the creeks include pesticide and herbicide use, though impacts on water quality have not been significant based on initial surveys. Wildlife presence includes diverse species such as beavers, deer, and bears. Recreational activities primarily occur in the San Simeon Creek Watershed and are centered around campgrounds that manage wastewater through various systems. Geologic hazards such as landslides and earthquake risks are monitored, and flood protection measures are in place for critical infrastructure like wells. Overall, the watersheds are subject to ongoing management efforts to maintain water quality standards and mitigate potential sources of contamination as they continue to evolve. The Initial WSS concluded that agricultural runoff, wastewater disposal ponds, and livestock grazing were the most significant potential contaminant sources. Table 1 provides details on each watershed from San Luis Obispo County's Watershed Snapshots as a supplementary description to the Initial WSS details.

Table 1. San Simeon and Santa Rosa Creek Watershed Overview

Land Characteristics	San Simeon Creek Watershed	Santa Rosa Creek Watershed
Jurisdictions and Local Communities	County of San Luis Obispo Town of San Simeon	County of San Luis Obispo Cambria Community Services District Town of Harmony
Planning Areas	North Coast Planning Area	Adelaida, North Coast, Estero Planning Areas
Potential Growth Areas	Hearst Corporation Property North Coast Planning Area San Simeon Village Pine Resort Area	North Coast Planning Area Cambria Community Services District
Facilities Present	Cambria Community Services District Well Sites	Cambria Community Services District Wastewater Treatment Plant District Well Sites
Commercial Uses	Cambria Rock Rancho San Simeon Pit Arroyo Del Oso Pit Recreation and Tourism Agriculture	Cambria Pit Bianchi Quarry Land Red Rock Pit Tourism and Recreation Agriculture

1.2 2015 Update of Initial Watershed Sanitary Survey

An update of the Initial WSS was prepared in 2015 by Water Systems Consulting Inc. using existing reports, maps, and other documents provided by the District; as well as interviews conducted with relevant agencies and staff of the District. Material from the 2015 WSS update and the Initial WSS are referenced throughout the 2024 WSS Update. Sections such as watershed characteristics, supply system, and contaminant sources have not changed significantly since 2015.

1.2.1 Status of Initial WSS Recommendations

Initial WSS recommendations included increased water quality sampling, increased assessment of raw groundwater, and a flood mitigation measure requiring the relocation of an SS well to the SRC watershed. The 2015 WSS update reported on upgrades made by the District based on the recommendations in the Initial WSS. Below is a summary on the status of each recommendation:

1.2.1.1 Water Quality Sampling

The District collects and reports the required drinking water samples such as coliform, nitrate, sulfate, Na, etc. The District also routinely monitors treated water for constituents that are associated with raw water quality and/or treatment and distribution such as lead, copper, and disinfection by-products (DBPs). These results are reported to DDW and appear in water quality reports such as the Consumer Confidence Report (CCR).

The watersheds have joined the Central Coast Ambient Monitoring Program (CCAMP), a regional water quality monitoring and assessment program by the Central Coast Regional Water Quality Control Board. Through this program, water quality information is gathered, evaluated, and shared to support decision-

makers and the public in maintaining, restoring, and enhancing water quality in the Central Coast Region. CCAMP conducts sampling in the San Simeon Creek and Santa Rosa Creek Watersheds.

Surface water samples are not collected during low flow conditions, such as noncontinuous flow for a minimum of 100 feet, nonflowing pools disconnected by dry ground, and/or no water. The Santa Rosa and San Simeon Creeks typically have low flow conditions from July to December.

Water quality of the effluent discharged at the District's WWTP percolation ponds is also monitored.

1.2.1.1 Raw Groundwater Sampling

The District collects and reports raw water bacteriological samples from their San Simeon and Santa Rosa wells as required under the Total Coliform Rule (TCR) and submitted the required samples for bacterial analysis.

1.2.1.1 Flood Mitigation

The Initial WSS suggested relocating a San Simeon well to the Santa Rosa Watershed to reduce flood risk, due the well being within the flood 100-year flood plain. Instead of relocation, SS1 was raised 3 feet and additional levee provisions were added around the San Simeon well field to reduce flood risk. Additionally, a new well (SR4) was built in the Santa Rosa Creek Watershed.

1.2.2 2015 WSS Updated Recommendations

The following section provides recommendations from the 2015 WSS. The purpose of these recommendations is to prevent the transport of contaminants throughout the watershed surface water bodies. These recommendations are also meant to improve watershed monitoring to increase detection of potential contaminants and their sources.

1.2.2.1 Watershed Monitoring

Watershed monitoring for potential contaminants is a critical aspect of watershed management plans. Monitoring can help identify potential contaminants, sources of those contaminants, and help determine appropriate mitigation measures as contaminants are identified. Additional monitoring recommendations have been described in the Santa Rosa Creek Watershed Management Plan (WMP). This recommendation described continuous yearly sampling to assess risks to water quality and aquatic species, determine pollutant sources, and best management practices. Enhanced water quality monitoring was also recommended during the implementation of the Emergency Water Supply project.

1.2.2.2 Education

Within the Santa Rosa Creek Watershed, property owners have become proactive in protecting watershed resources by implementing best management practices. Educational programs in the watershed have included water quality monitoring snapshot days, beach and creek cleanups, installation of educational signs, as well as several other programs summarized in the Santa Rosa Creek WMP. There is an opportunity to implement additional strategies within the watersheds to help reduce point and non-point source contamination in the watershed. In addition to the District, local organizations such as Greenspace, Friends of Fiscalini Ranch Preserve, and the Cambria Forest Committee should continue their educational efforts.

1.2.2.3 Containment and Pollution Prevention

Continued watershed monitoring and educational programs are recommended to prevent chemical contamination. Increased monitoring will help identify spills and contaminants and will help better contain their spread within the watersheds/aquifers.

1.3 Status of 2015 WSS Recommendations

The 2015 WSS Update recommended that the District implement additional Watershed Monitoring programs, such as those described in the Santa Rosa Creek WMP, and similar to already existing ones like the Central Coast Ambient Monitoring Program (CCAMP). Greenspace Cambria, a local non-profit land trust has implemented techniques used by the Monterey Bay Sanctuary Citizen Watershed Monitoring Network to sample from the SRC Watershed. Additionally, the continuous CCAMP monitoring samples have consistently provided surface water quality data which are summarized for both watersheds in Section 3.2 of this report.

Another recommendation included improving and continuing educational efforts to inform the public about how to best protect their watershed resources. Local organizations such as Greenspace have continued their efforts in education with programs such as the Greenspace Nature Club, Resiliency and Watershed Education, Speaker Series', and Environmental Education in Local Schools. The Environmental Education program was originally an initiative with only Santa Lucia Middle School, but has expanded to include elementary and high school students. Greenspace is developing programs to educate these students on the local watershed ecosystems and how to best conserve these watershed environments. Another local organization, Friends of Fiscalini Ranch Preserve has also made efforts to educate the public with their nature walks and Middle School Forest Field Guide Project.

The following sections provide an update on the information presented in the Initial and 2015 WSS. This update was prepared by Confluence Engineering Solutions with materials provided by the District and other sources listed in Section 7.

Section 2. Watershed Characteristics

2.1 Water Sources and Treatment Facilities

Cambria relies solely on groundwater from their five wells for drinking water. The wells are drilled into the San Simeon Valley and Santa Rosa Valley Groundwater Basins. These basins are narrow and shallow which results in low supply during the middle and late periods of the dry season and rapid recharge during wet season rainfall periods. The District's primary wells are San Simeon wells SS1, SS2, and SS3 located in the San Simeon Valley Groundwater Basin. The SR3 and SR4 supplementary wells are located in the Santa Rosa Valley Groundwater Basin and supplement San Simeon Valley Groundwater Basin pumping during the dry season. The locations of the District's groundwater wells are shown in Figure 1.

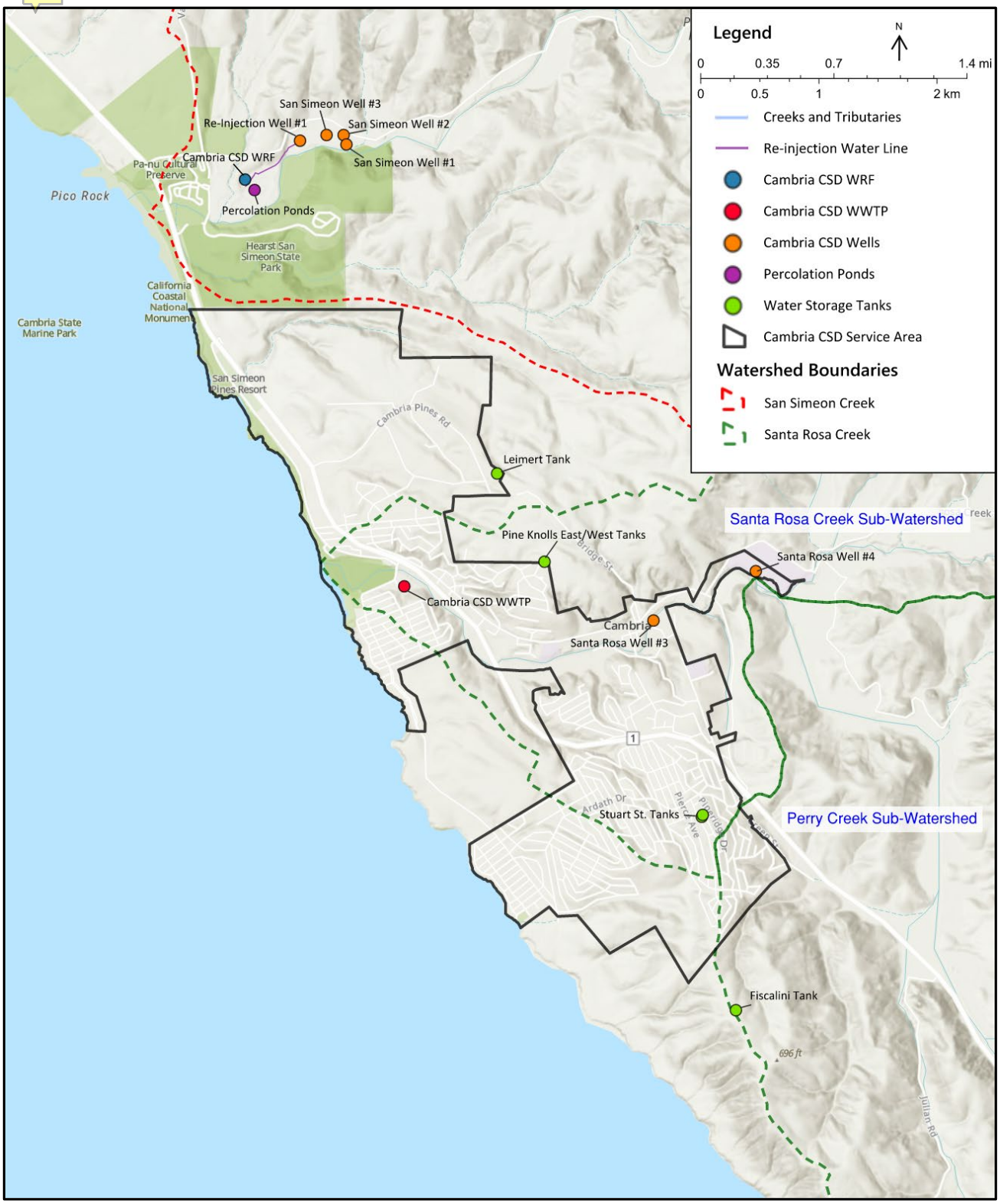

Figure 1. Map of District Water Supply System

Perry Creek flows into Santa Rosa Creek upstream from the District's facilities located in the Santa Rosa Valley Groundwater Basin. Additionally, the groundwater in the Perry Creek Sub-Watershed is part of the Santa Rosa Valley Groundwater Basin. The contaminations or hazards present in the Perry Creek Sub-Watershed could affect the District's facilities contained in the basin. The Perry Creek and Santa Rosa Creek Sub-Watersheds make up the Santa Rosa Creek Watershed and are collectively referred to as such, unless specifically indicated otherwise in this report.

The District is currently licensed to pump 799 AFY from the San Simeon Valley Groundwater Basin wells and 218 AFY from the Santa Rosa Valley Groundwater Basin wells. The District solely relies on the San Simeon Well Field during the wet season (November-April). As water levels decline in the San Simeon Valley Groundwater Basin throughout the dry season (May-October), the District relies on the Santa Rosa Valley Groundwater Basin wells, specifically SR4. The District avoids excessive pumping in the San Simeon Valley Groundwater Basin, to avoid adverse impacts, such as saltwater intrusion, which can take several concurrent wet years to restore. See well specifications below in Table 2.

Table 2. Well Specifications

Well	Basin	Year Built	Typical Operation Flow Rate (GPM)	Well Depth (ft)	Depth to Perforations (ft)	Annular Seal Depth (ft)
SS1	San Simeon Valley	1978	400	110	30-105	30
SS2	San Simeon Valley	1978	385	80	30-75	30
SS3	San Simeon Valley	1978	400	112	32	32
SR3	Santa Rosa Valley	1963	350	116	56	40
SR4	Santa Rosa Valley	2000	400	130	80	50

The wells in San Simeon Valley Groundwater Basin provide higher quality water than the Santa Rosa Valley Basin wells and are the primary water sources for the District. SS2 and SS3 are preferred over SS1 since they are greater than 150 feet away from San Simeon Creek and not subject to the SWTR monitoring requirements. SS1 is periodically within 150 feet of the creek depending on flow in the creek and is therefore not operated during the high flow periods. Additional filtering would allow the District to operate SS1 when creek flow is within 150 feet of the well and remain in compliance with the SWTR. San Simeon Valley Groundwater Basin wells are chlorinated at a common location near SS3.

There are two active wells that the District operates for drinking water in the Santa Rosa Valley Groundwater Basin: SR3 and SR4. In 2000, wells SR1 and SR3 were temporarily put into standby due to the discovery of a Methyl tert-butyl ether (MTBE) contamination plume. The District reallocated resources to an emergency well project to build SR4, due to their inability to operate wells SR1 and SR3 due to the presence of MTBE contamination from leaking underground fuel tank(s). Construction on Well SR4 was completed by the District in 2001 and is located up gradient from the MTBE plume. The MTBE plume had subsequently undergone remediation and at the time of the latest Domestic Water Supply Permit application to DDW (2014), the plume was deemed stable by the District. The cleanup case was subsequently closed by the SWRCB in 2018. Following exceptional drought conditions and emergency water shortage in 2014, the District restored operation of SR3 and converted SR1 to a standby well. The

restoration of SR3 allowed the District to access deeper aquifer water that could not be pumped by SR4. This restoration also included the instillation of a new submersible well pump and rebuilding an iron and manganese removal filter plant, which had been inoperable since 2000.

Treatment facilities located at SR3 and SR4 provide iron and manganese removal, filtration, and disinfection. The facility at SR3 includes a Filtronics process with a capacity of 600 gpm. Coagulant and chlorine contact time requirements are met during this treatment process. SR4 has a Pureflow treatment system sized to treat 600 gpm. The SR4 treatment facility consists of ferric chloride addition, inline mixing, pressure filtration, and chlorine contact piping. The SR4 treatment facility has been improved with a SCADA upgrade, which gives real-time alerts and notifications when processing parameters are nearing non-compliance levels. The District can also alter disinfection dosage and start up or shut down the SR4 facility remotely.

2.2 Wastewater and Recycled Water Treatment Facilities

The District owns and operates their own wastewater treatment plant (WWTP) and disposes of treated WWTP effluent through evaporation/percolation ponds. Biosolids from the WWTP are dewatered and hauled off to a disposal site located in Kern County. The WWTP is currently undergoing upgrades that are described in greater detail in Section 5.3.

The District owns an Indirect Potable Reuse (IPR) water recycling facility, called the Water Reclamation Facility (WRF), formerly known as the Advanced Water Treatment Plant (AWTP). The WRF : source water is pumped from Well 9P7 and is a blend of native basin groundwater (San Simeon Creek underflow), deep aquifer brackish water (diluted seawater that occurs from the subterranean dispersion of salts from a deeper saltwater wedge into an overlying freshwater interface zone) and percolated secondary effluent from the CCSD's wastewater treatment plant (WWTP). Effluent from WWTP is discharged onto percolation ponds, where it enters the shallow aquifer. The WRF treats the source water from 9P7using Membrane Filtration (MF), Reverse Osmosis (RO), and Ultraviolet/Advanced Oxidation (UV/AOP) processes to treat wastewater for re-injection into the San Simeon Valley Groundwater Basin at a different location. The treatment process begins with MF, which removes fine particles from the source water. Next, RO removes salt and other complex organic matter. The water then undergoes an advanced oxidation process where UV light and hydrogen peroxide are used to remove trace organic compounds that are not fully removed by the RO membranes. Finally, post-treatment stabilizes the water to prevent corrosion of the conveyance pipeline and pumping equipment. The WRF is located downgradient of the San Simeon Well Field and extracts from and injects into the San Simeon Valley Groundwater Basin. During WRF operation, the District is required to monitor raw water coliforms weekly at Extraction Well 9P7, which provides the source water for the WRF. Well 9P7 is used to extract water below the percolation ponds and deliver to the WRF when in operation. The water extracted through 9P7 is a blend of native basin groundwater (San Simeon Creek underflow), deep aquifer brackish water (diluted seawater that occurs from the subterranean dispersion of salts from a deeper saltwater wedge into an overlying freshwater interface zone) and percolated secondary effluent from the CCSD's wastewater treatment plant (WWTP). The locations of the WWTP, WRF, and the evaporation/percolation disposal ponds are shown in Figure 1. An overhead view of the WRF facilities is shown in Figure 2.

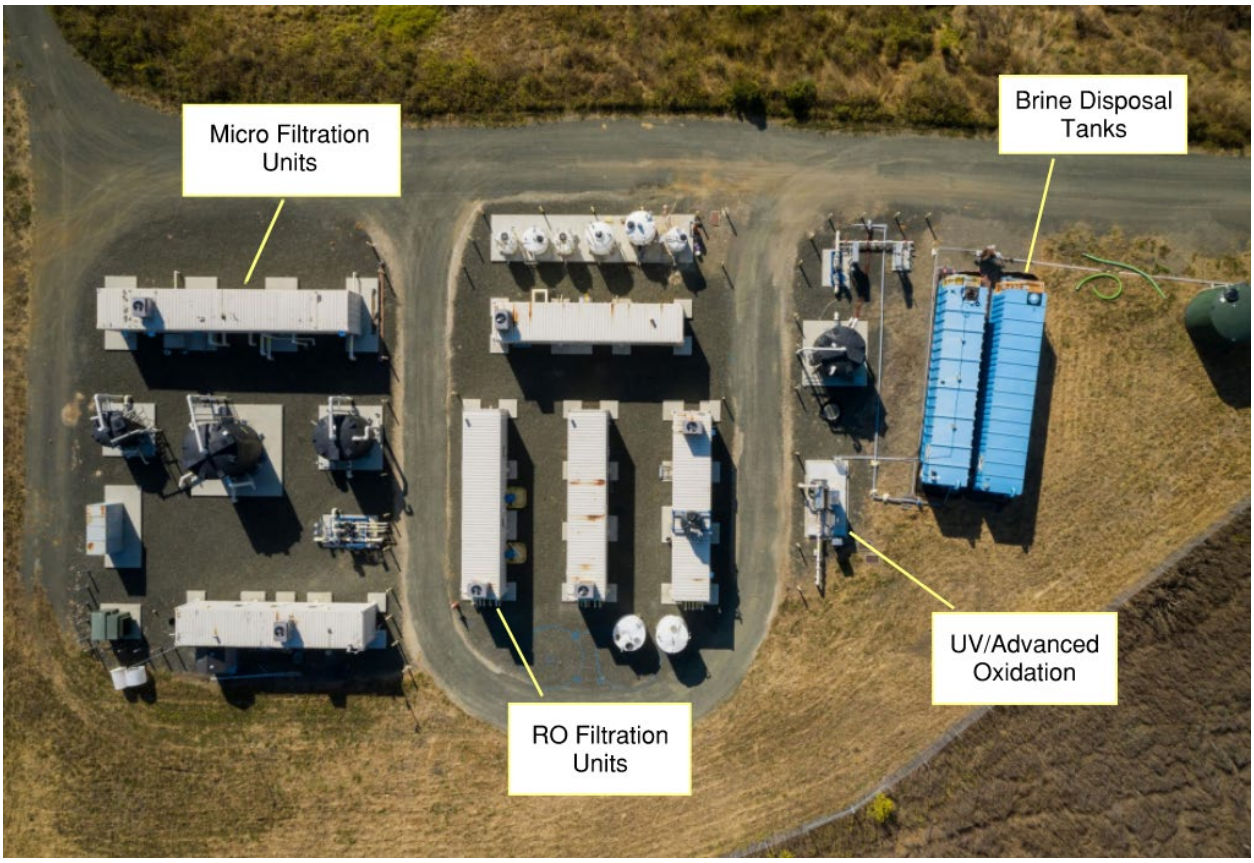

Figure 2. WRF Facilities Overhead

The District installed the WRF in 2015 under an emergency permit. Under the District's current WRF permit, the facility can only be operated under emergency conditions to recharge the San Simeon Valley Groundwater Basin. Since emergency status had been lifted at the time of the WRF's completion, the District has not yet run the facility for long periods of time and lacks operational data. The District is currently in the process of obtaining the necessary permits to allow the use of the WRF for regular operations outside of emergency conditions. These permits would allow the WRF to operate on a 24/7 basis for up to 6 months per year. This would allow the District to produce around 700,000 gpd of advanced purified recycled water for re-injection into the San Simeon Valley Groundwater Basin. The injected water would then travel through the basin for at least 60 days prior to reaching SS1 and SS2 for extraction, as required by the DDW regulations for IPR. Additionally, around 144,000 gpd of treated and de-chlorinated advanced purified recycled water would be discharged into San Simeon Creek to maintain and enhance water quality in the San Simeon Creek Lagoon during the dry season. In total, the WRF is capable of producing up to 844,000 gpd of product water of varying quality and 155,000 gpd of wastewater in the form of reverse osmosis concentrate and membrane filtrate backwash under regular operating conditions.

2.3 Land Use and Population

2.3.1 Land Use

Land use in both the Santa Rosa and San Simeon Creek Watersheds has not changed significantly since the last WSS Update. In the SSC watershed, most of the land use is for agricultural purposes including grazing and farmland. Urban land has not increased since the last survey and is not anticipated to increase significantly in the near future. In the Santa Rosa Creek and Perry Creek Sub-Watersheds (collectively the SRC watershed), agriculture is also the largest land use. Agricultural practices in the SRC Watershed range from cattle ranching to crop cultivation, consisting primarily of permanent crops (Valencia oranges, apples, avocados, grapes), rotational crops (squash, tomatoes, sugar peas, Brussel sprouts, cabbage, fava beans), and field crops (grains for hay, oat hay). There is a slightly higher percentage of urban and built-up residential land in the SRC Watershed as a large part of the community of Cambria is located in the watershed.

The quantity of each land use type in the San Simeon Creek Watershed, and the Santa Rosa Creek and Perry Creek Sub-Watersheds are summarized in Table 3 and Table 4. The data was gathered from the San Luis Obispo (SLO) County Open Data Portal, Official Land Use Category Designations, last updated on April 12th, 2024. The existing land uses are shown in Figure 3 and Figure 4.

Table 3. San Simeon Creek Watershed Land Use

Land Use Category	Acres	Percent of Watershed
Agriculture (Grazing and Farmland)	19,099	92.94%
Recreation	438	2.13%
Rural Lands	1,012	4.93%
Total	**20,550**	100%

Table 4. Santa Rosa Creek Watershed Land Use

Santa Rosa Creek Sub-Watershed Land Use		
Land Use Category	**Acres**	**Percent of Watershed**
Agriculture	13,114	84.50%
Commercial	109	0.71%
Public Facilities	108	0.70%
Residential: Low Density	40	0.26%
Residential: Multi-Family	81	0.52%
Residential: Single Family	627	4.04%
Rural Lands	1,195	7.70%
Recreation	66	0.42%
Open Space	180	1.16%
Total	**15,521**	100%
Perry Creek Sub-Watershed Land Use		
Land Use Category	**Acres**	**Percent of Watershed**
Agriculture	14,226	99.10%
Commercial	3	0.02%
Public Facilities	8	0.06%
Residential: Multi-Family	4	0.03%
Residential: Single Family	84	0.59%
Recreation	30	0.21%
Total	**14,355**	100%

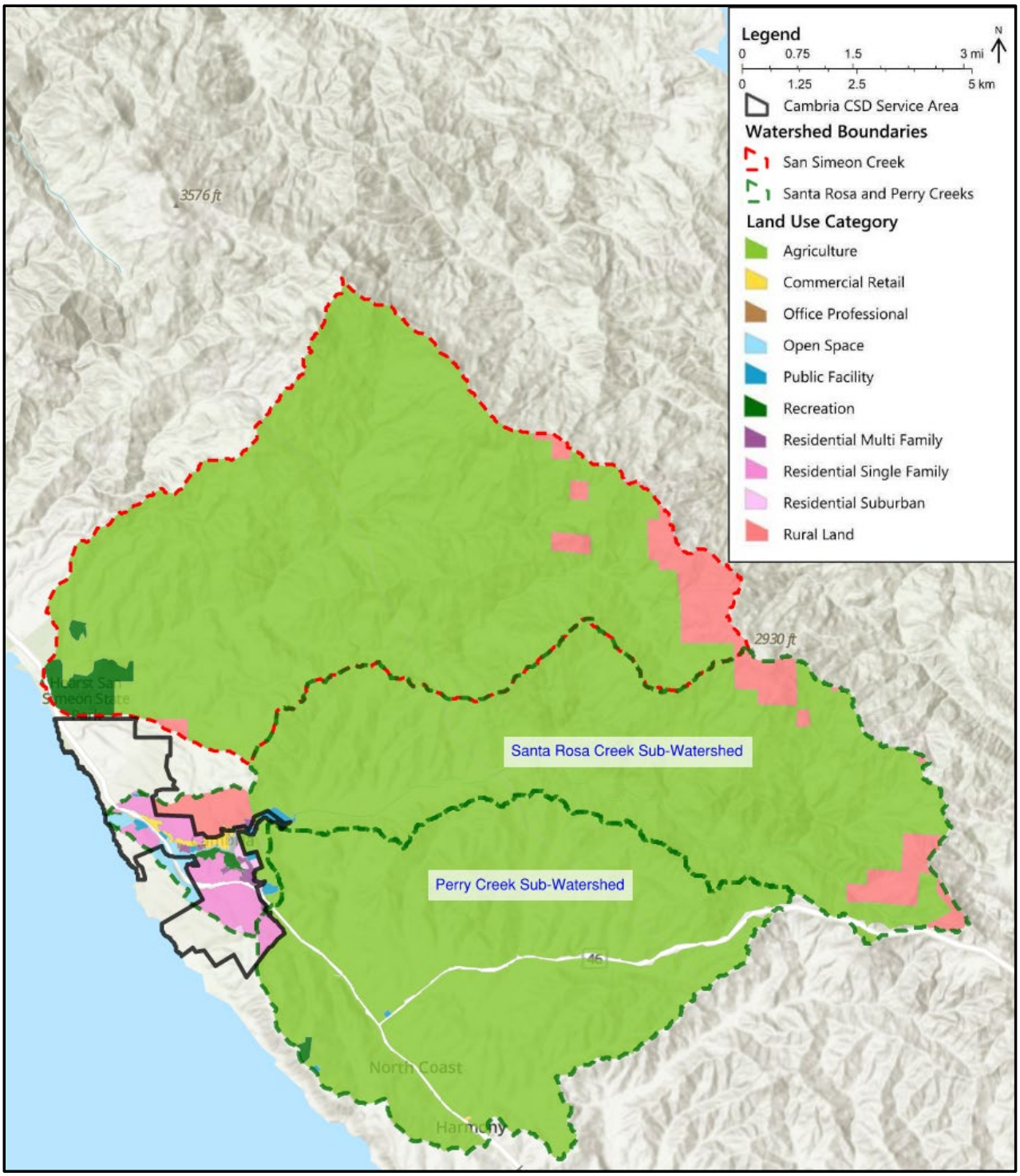

Figure 3. Watershed Boundaries and Land Use

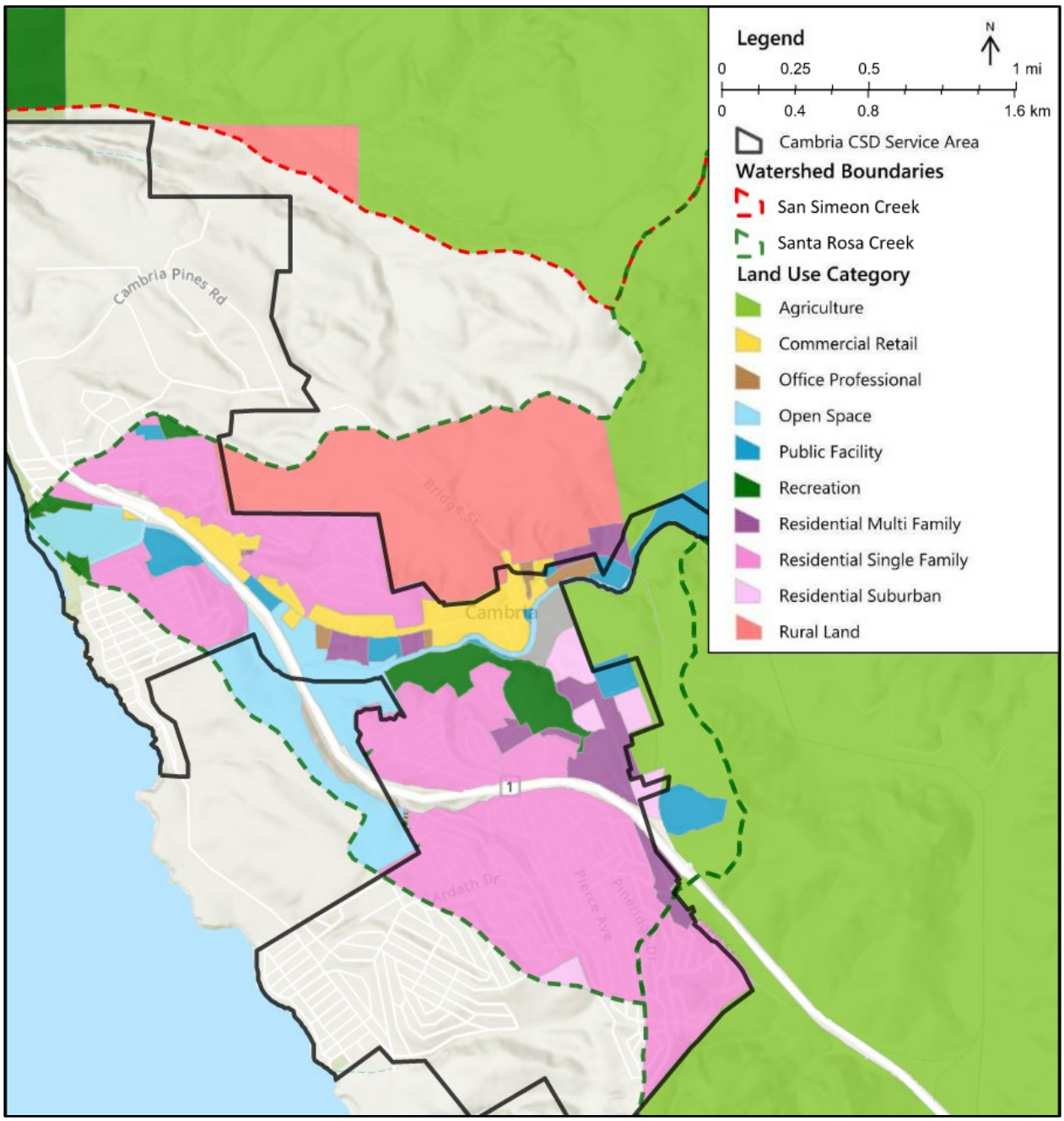

Figure 4. Watershed Boundaries and Land Use Cambria Detail

2.3.2 Anticipated Growth

The District has had a water connection moratorium in place since November of 2001 due to concerns over long-term reliability of its water supply and a need to increase water storage for fire suppression. To address these issues, the District conducted comprehensive water master planning studies, culminating in the certification of a program-level water master plan Environmental Impact Report (PEIR) by the District's Board of Directors in August 2008. The PEIR recommends a build-out of 4,650 existing and future residences. This will allow the 654 single family, 7 multifamily, and 10 commercial lot owners on the existing water connection wait list to proceed with connection, over a period of 22 years, once the moratorium is lifted. There is potential for additional connections beyond the lot owners on this wait list. The moratorium may be lifted as soon as 2026, which would allow for a projected population growth rate of approximately 1% per year for single family residences until a maximum of 4,650 residential units is reached from 2026 to 2043. The current population of the District, according the 2020 U.S. Census, is 5,678 people. Past, present, and future population data/projections from the U.S. Census and the Cambria 2020 Urban Water Management Plan (UWMP) is shown in Table 5. The projected population is an estimate based on the average growth rate projections presented in the 2020 UWMP.

Table 5. CCSD Historical and Projected Population

Year	CCSD Population
1990	5,382
2010	6,032
2020	5,678
2025	6,000
2030	6,300
2035	6,500
2040	6,800

A population breakdown for the San Simeon Creek and Santa Rosa Creek watersheds is summarized in Table 6. Neither watershed has experienced significant growth since the previous US Census Blocks in 2010 due to the moratorium. However, upon the lifting of the moratorium, the watershed populations are expected to grow at a similar rate to the unincorporated community of Cambria, around 1% per year as estimated in the 2020 UWMP.

Table 6. SSC and SRC Watersheds Population Breakdown

Watershed	CCSD Population
San Simeon-Arroyo de le Cruz	990
Santa Rosa Creek	5,900
Note: 1. Population estimated using US-LTRCD Watershed Snapshots.	

2.4 Geological and Ecological Watershed Characteristics

The San Simeon Valley and Santa Rosa Valley Groundwater Basins are located on the western slope of the Santa Lucia Mountain range and are predominantly composed of greywacke and metavolcanic rocks from the Franciscan formation. Cypress Mountain is the highest point in the Santa Rosa Creek Watershed and reaches a maximum elevation of 2,933 feet above sea level. Rocky Butte is the highest point in the San Simeon Watershed and peaks at 3,432 feet above sea level. The watershed area features mainly hilly terrain, with lower-lying regions along the coastline.

Soils along the coast of the San Simeon Creek Watershed are moderate to well-drained, fine to moderately course textured, and have moderate permeability in the stream channels. Sandy soils and sandy loam soils are found along the coast, with loam-textured soils in the middle region and gravel clay loams in the hills. The vegetation primarily consists of coastal oak woodland, with non-native annual grassland, chaparral, scrub oak, and serpentine Manzanita also present. The Arroyo de Los Chinos Creek, Arroyo de la Cruz Creek, Pico Creek, Steiner Creek, and San Simeon Creek provide habitat for Central California Coast Steelhead.

Cambria is located downstream of the confluence of Perry Creek and Santa Rosa Creeks. The geology is composed of hard greywacke sandstone and sheared argillite. There are steep hill slopes, shallow spoils, and sparse shrub vegetation along Santa Rosa Creek. The vegetation cover includes non-native grassland, coast live oak woodland, Montane hardwood, Monterey Pine, and closed-cone Pine Cypress. Upper and Lower Santa Rosa Creek and Lower Perry Creek contain habitat for Steelhead populations. A map of the watershed boundaries and surface water features is provided in Figure 5.

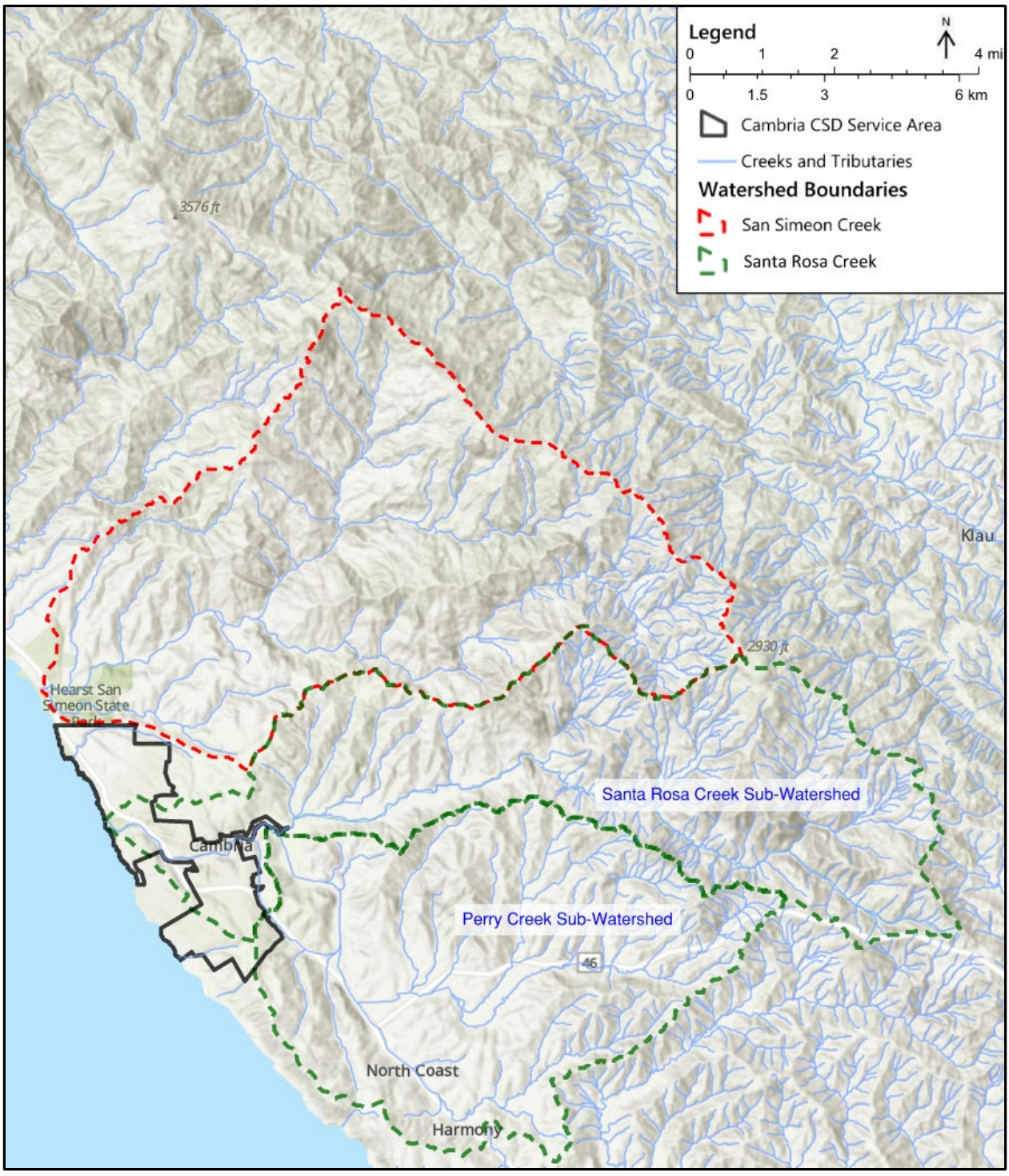

Figure 5. Watershed Boundaries and Surface Water Features

2.5 Precipitation Data

Over the past nine years, since the 2015 WSS, Cambria has received an annual rainfall of 21.27 inches, measured at the Santa Rosa Creek weather station on Main Street on the town's eastern side. This data is representative of typical rainfall totals in the lower elevations in the western portion of the Santa Rosa Creek Watershed and is summarized in Table 7 and Figure 6.

Table 7. Monthly Precipitation Data, Santa Rosa Creek (#717)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0.16	1.46	0.31	1.26	0	0.05	1.38	0	0	0.16	1.26	1.65	7.69
2016	6.77	0.32	5.27	0.24	0	0	0	0	0	2.09	2.36	5.28	22.33
2017	11.58	9.77	1.97	1.73	0.16	0	0	0	0.08	0.2	1.02	0.04	26.55
2018	3.16	0.12	9.41	0.67	0.04	0	0	0	0	0.2	3.11	1.61	18.32
2019	7.76	6.57	4.77	0.12	2.08	0	0	0	0	0	3.2	5.92	30.42
2020	0.96	0.04	2.95	2.34	0.44	0	0	0.12	0	0	0.59	1.3	8.74
2021	12.13	0.28	1.42	0	0.04	0	0	0	0	2.12	0.48	9.6	26.07
2022	0.12	0.04	1.84	0.68	0	0	0	0	1.12	0	1.55	10.01	15.36
2023	10.94	3.89	12.59	0.03	0.65	0.02	0.01	0.11	0.15	0.03	2.53	5	35.95
Monthly Averages	5.95	2.50	4.50	0.79	0.38	0.01	0.15	0.03	0.15	0.53	1.79	4.49	21.27

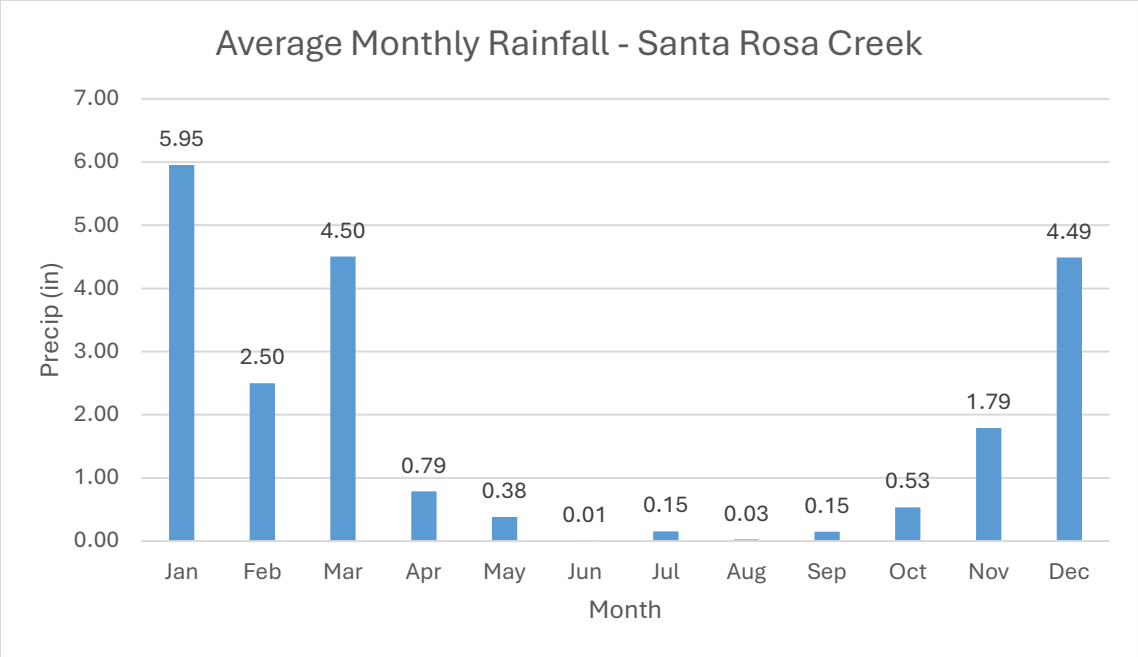

Figure 6. Average Monthly Precipitation Chart, Santa Rosa Creek (#717)

Similarly, Table 8 shows the monthly rainfall data for the San Simeon Creek station, located at a low elevation in the western portion of the San Simeon Creek Watershed.

Table 8. Monthly Precipitation Data, San Simeon Creek (#764)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0.12	1.46	0.2	1.02	0.04	0	0.63	0	0	0	0.98	1.44	5.89
2016	6.46	0.47	4.96	0.24	0	0	0	0	0	1.65	2.21	4.64	20.63
2017	13.28	8.67	1.73	2.05	0.16	0	0	0	0.08	0.16	0.67	0.04	26.84
2018	2.44	0.16	7.6	0.63	0.04	0	0	0	0	0.16	2.52	1.3	14.85
2019	6.22	4.72	3.72	0.12	1.54	0	0	0	0	0	1.69	5.94	23.95
2020	0.98	0	3.66	1.93	0.67	0	0	0.08	0	0	0.35	1.14	8.81
2021	10.31	0.24	1.26	0	0.08	0	0.04	0	0.35	1.72	0.56	8.24	22.8
2022	0	0.04	1.68	0.56	0	0	0	0	1.56	0	1.93	8.15	13.92
2023	8.6	2.67	11.7	0.05	0.51	0.04	0.02	0.11	0.17	0.03	2.72	3.95	30.57
Monthly Averages	5.38	2.05	4.06	0.73	0.34	0.00	0.08	0.02	0.24	0.41	1.51	3.87	18.70

Significantly more rainfall occurs in the higher peaks of the easternmost part of the Santa Rosa and San Simeon Creek Watersheds. This is due to the watersheds' location on the upslope and windward side of the Santa Lucia Mountain range. As moisture gets drawn off the Pacific Ocean, the increase in elevation causes an effect known as orographic lift which is where the clouds cool and compress allowing more moisture to fall. The Rocky Butte weather station is in the northeast corner of the San Simeon Creek Watershed and consistently receives some of the highest rainfall in San Luis Obispo County. The monthly precipitation data shown in Table 9 and Figure 7 is collected at Rocky Butte and is representative of the rainfall totals seen in the higher peaks of both the San Simeon and Santa Rosa Creek Watersheds.

Table 9. Monthly Precipitation Data, Rocky Butte (#703)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0.24	6.97	0.12	1.65	0.12	0	1.54	0.03	0	0.12	2.01	3.19	15.99
2016	10.47	1.34	9.02	0.67	0.07	0	0	0	0	4.26	3.34	8.51	37.68
2017	33.92	23.6	5.32	7.96	0.2	0	0	0	0.04	0.24	1.07	0.07	72.42
2018	4.57	0.28	21.91	0.35	0.08	0	0	0	0	0.63	5.98	2.72	36.52
2019	15.83	13.7	10.04	0.16	3.27	0	0	0	0	0	2.87	12.36	58.23
2020	1.06	0	5.55	4.61	1.3	0.35	0	0	0.08	0	1.02	1.65	15.62
2021	15.16	0.16	1.77	0	0	0	0	0.12	0.04	5.84	1.36	19.4	43.85
2022	0.08	0	2.44	1.2	0	0	0	0	3.28	0	4.16	27.24	38.4
2023	27.4	8	27.64	0	0.44			0.56	0.44	0.16	5.16	21.28	91.08
Monthly Averages	12.08	6.01	9.31	1.84	0.61	0.04	0.19	0.08	0.43	1.25	3.00	10.71	45.56

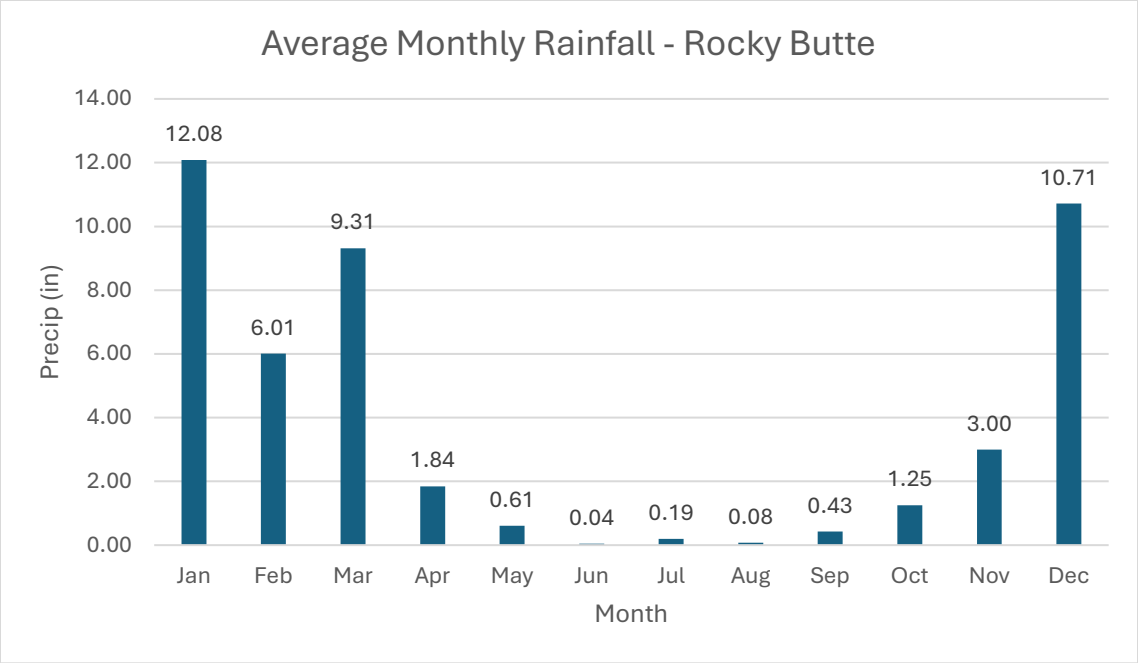

Figure 7. Average Monthly Precipitation Chart, Rocky Butte (#703)

In both watersheds, most of the rainfall occurs in the wet season (November through April) while the dry season (May through October), and especially the summer months, see little to no precipitation each year. The driest annual rainfall since the 2015 WSS update was 2015 with only 5.89 inches of rainfall measured at the San Simeon station and the wettest year was 2023 with 91.08 inches measured at Rocky Butte.

2.6 Potential Contaminant Sources

2.6.1 Wastewater Treatment

The District's WWTP is located in Cambria approximately two miles south of the San Simeon Creek and adjacent to the Santa Rosa Creek. The treatment plant includes three concrete lined effluent storage reservoirs. In 1988, effluent pumped to the disposal fields flowed, without treatment, into Van Gordon Creek. Consequently, the Central Coast Regional Water Quality Control Board (CCRWQCB) issued a Clean-Up/Abatement Order requiring the District to upgrade the capacity of the disposal fields for future flows. Major improvements to the effluent disposal area were made by 1995. The effluent disposal field includes four percolation ponds, each about six feet deep on approximately 20 acres, and are protected by an earthen berm along the perimeter. Sludge generated by the WWTP is aerobically digested, decanted, and then dewatered. The processed sludge is then hauled off to a disposal site located in Kern County. The disposal site is not located in or contributing contaminants to the San Simeon or Santa Rosa Creek Watersheds.

The Water Reclamation Facility (WRF) is supplied with percolated effluent from the WWTP and uses Membrane Filtration, Reverse Osmosis (RO), and Ultraviolet/Advanced Oxidation (UV/AOP) processes to treat wastewater for re-injection it into the San Simeon Valley Groundwater Basin. All chemical cleaning waste, reverse osmosis concentrates, and analytical waste flows are held in storage tanks and subsequently shipped off in tanker trucks to a properly licensed facility. Previously, the concentrate was to be disposed of in the Van Gordon Evaporation Pond, however, during a flood in 2017, storm water drained across San Simeon Creek Road and into the evaporation pond. This resulted in a Cease-and-Desist order for operation of the evaporation pond from the CCRWQCB and the current plan for disposal of concentrate is to truck it offsite and outside of the San Simeon and Santa Rosa Creek Watersheds.

No sewers or sewage disposal facilities are located within 50 and 100 feet respectively from all drinking water well sites.

2.6.2 Urban Runoff

Another potential source of contamination is urban runoff entering the San Simeon or Santa Rosa Creek Watersheds. Urban runoff from residential areas and transportation corridors (highways, parking lots, and gasoline stations) can carry oil, grease, gasoline, or automobile coolant into the surface features and/or groundwater basins. Urban areas only account for less than 1% of the Santa Rosa Creek Watershed, and even less in the San Simeon Creek Watershed, and therefor the risk of contamination due to urban runoff is limited.

The California Department of Transportation (Caltrans) uses herbicide products to limit plant and weed growth along highways. Two sections of Caltrans maintained highways are in the Santa Rosa and San Simeon creek Watersheds, Highway 46 (postmiles 0-12) and Highway 1 (postmiles 45-59). Caltrans sprays herbicides along these sections of highway to kill broadleaf weeds in cracks and around hardware such as signs, guardrails, and delineators on the shoulders of the road. Caltrans also sprayed fire strips and cut stumps in areas around Cambria. For most of the roadside applications, they used a truck to spray chemicals along the shoulder where needed, spot spraying was also used for smaller more precise applications. Table 10 shows the available data, since 2020, from Caltrans on herbicide applications in the areas located in the SSC and SRC Watersheds.

Table 10. Highway Herbicide Application

Year	Highway 46 (PM 0-12)		Highway 1 (PM 45-59)	
	Commercial Chemical Name	Application Rate (ounces/acre)	Commercial Chemical Name	Application Rate (ounces/acre)
2020	Telar XP Herbicide	2	Telar XP Herbicide	2
	Milestone Dow	7	Milestone Dow	6.93
	Pro-spreader	6.43	Pro-spreader	6.65
	Reign	32	Reign	32
	Esplanade	6.17	Esplanade	6.5
	Round-up pro	80	Round-up pro	80
	Cleantraxx	64	Cleantraxx	64
2021	Crosshair	8	-	-
	Hasten-EA	4	Smoke	64
	Round-up pro	80	Round-up pro	102
2022	Milestone Dow	7	Milestone Dow	7
	Crosshair	4	Crosshair	4
	Hasten-EA	10.72	Hasten-EA	4
	Esplanade	5.11	Esplanade	6.38
	Round-up pro	80	Round-up pro	86.32
	Cleantraxx	64	Cleantraxx	64
2023	Milestone Dow	6.61	Milestone Dow	8
	Crosshair	3.79	Crosshair	5.32
	Hasten-EA	6.08	Hasten-EA	5.26
	Esplanade	4.95	Esplanade	17.5
	Round-up pro	61.57	Round-up pro	87.33
	Cleantraxx	63.66	Cleantraxx	64
	Telar XP Herbicide	2.07	Esplanade Sure	15

There are also unregulated uses of herbicides that can contaminate the watershed through leaks or spills. Educational programs have been in effect since the Initial WSS to reduce the quantity of unregulated use of these herbicides.

2.6.3 Chemical Spills

The SWRCB geographic environmental database GeoTracker was used to identify sites of hazardous material spills or cleanup activities which occurred since the Initial WSS. Significant spills and cleanup activities are summarized in Table 11. All significant spills have undergone remediation and thorough testing to ensure the groundwater in the surrounding area has not been impacted. The most recent active cleanup was from the MTBE plume in 2000. After the completion of multiple rounds of tests and remediations over multiple years, the MTBE plume case closed in February of 2018.

Table 11. History of Spills in the Watersheds

Site Location	Report Date	Substances Released	Remedial Action	Cleanup Status
Chevron S/S #9-2565 (former)	10/26/1988	Diesel, Gasoline	Excavation, In Situ Biological Treatment, In Situ Physical/Chemical Treatment	Case Closed as of 5/2/2014
Cambria General Store	8/14/1990	MTBE/TBA/Other Fuel Oxygenates, Gasoline	Excavation, In Situ Physical/Chemical Treatment	Case Closed as of 12/29/2014
Cambria Air Force Station	11/25/1990	Diesel	n/a	Case Closed as of 2/23/1993
Hampton Hotel	8/1/1991	Gasoline	In Situ Physical/Chemical Treatment	Case Closed as of 11/9/2012
Chevron Station #9-0919[1]	6/1/1993	MTBE/TBA/ Other Fuel Oxygenates, Gasoline	Excavation, Pump & Treat, In Situ Physical/Chemical Treatment	Case Closed as of 2/15/2018
Former Miller Property	5/12/1998	Gasoline	In Situ Physical/Chemical Treatment	Case Closed as of 11/26/2012
Ski's Marketplace	10/11/2001	Benzene, MTBE/TBA/Other Fuel Oxygenates, Gasoline	Excavation, Monitored Natural Attenuation	Case Closed as of 6/14/2011

Notes:
1. MTBE plume from 1993 impacted wells SR1 and SR3 prompting construction of SR4 in 2000.

2.6.4 Wildlife and Grazing Animals

The presence of grazing animals and wildlife in the watershed raises concern for water-borne pathogens such as *Giardia* or *Cryptosporidium*. Most of the wildlife in the watersheds include beavers, deer, bear, coyotes, muskrats, and other rodents. Unusual animal species were identified in the Pico Creek Watershed, which includes a portion of the Hearst Ranch, bordering the San Simeon Creek Watershed on the northwest. Unusual species include Himalayan Tahr, Barberry Sheep, Zebra, Sambar Deer, Wild Pigs, and Rocky Mountain Elk.

There have not been observed physical or reported indications that the watershed areas exhibited unusual characteristics regarding livestock grazing. Crop cultivation provides separation between the livestock and the streams. However, pathogen contamination could still exist due to roaming livestock, and proximity of tourist and recreational open space activities which may become inundated.

2.6.5 Recreational Activities

Recreational activities have been labeled as a potential source of contaminants in past surveys. There are two campgrounds in the San Simeon Creek Watershed, located in San Simeon State Park and operated by California State Parks. The campgrounds have a combined 205 campsites for both tent camping and recreational vehicles. The wastewater from the San Simeon Creek Campground is pumped to the District's WWTP through force mains via three lift stations. The wastewater from the Washburn Campground is pumped, transported out by pumping trucks, and hauled to the Santa Maria Wastewater Treatment plant for processing. Recreational activities in the Santa Rosa Creek Watershed include tourist commercial services and recreational hiking in open public spaces.

2.6.6 Geologic Hazards

Two geologic hazards that could potentially contaminate Cambria's water sources are landslides and earthquakes. These hazards could negatively impact the watershed through large sediment deposits and increased turbidity in the source water. The United States Geological Survey (USGS) considers Cambria to have high landslide potential, especially in the rainy winter months when saturated water can inhibit mass movement. The USGS has noted two minor landslides occurring in and around Cambria. The most recent event was in 2017, when heavy rainfall between January 3rd and 9th spurred a mudslide near Main St., trapping vehicles and felling some trees. Landslides like this one have contributed sediment to the watershed creeks but no adverse water quality impacts have been recorded as a result. Earthquake hazard in the region is significant, with the Cambria and Cayucos faults being located near the watersheds. However, no significant adverse water quality impacts have been detected as a result of historic earthquakes.

San Simeon Creek field is a designated special flood hazard area, and the three District SSC wells are within the 100-year flood zone. Damage to the SSC and SRC wells occurred during flooding in March 1995, requiring the wells to be flood protected. The SSC wells were raised in 1996 to provide the required flood protection. The District also looked into options for relocating the wells out of the flood plain in the SRC Watershed.

2.6.7 Fires and Fire Hazards

Fires can expose and contaminate the water supply with suspended solids and organic matter. Firefighting materials, such as fire-retardant chemicals, can also contribute to contamination of source water. The California Department of Forestry and Fire Protection (CAL FIRE) identified in the unincorporated community ofCambria and the surrounding watersheds as a high to very high fire hazard severity zone. In recent years, the high percentage of dead or dying native pines in the Cambria forests pose a severe threat to the watershed. In addition to threatening homes and rural lands, fires within the watershed are considered a potential source of suspended solids and organic matter and could increase runoff and sedimentation of the creeks.

Using the fire history information available through the CAL FIRE geodatabase, three fires were identified in the Santa Rosa Creek and San Simeon Creek Watersheds since the 2015 WSS update. The Rosa Fire in 2022 burned 16.2 acres about a half mile north of Santa Rosa Creek Rd, approximately 4 miles east from Cambria. Three fires occurred in the Santa Rosa Creek Watershed in 2023: the Green Fire and two other small grass fires. The Green Fire burned 247 acres about 3 miles east of Highway 1 near Green Valley Rd (Hwy 46). The impacted area was in between two tributaries of Santa Rosa Creek, the Green Valley Creek

and Perry Creek. The smaller grass fires occurred along Green Valley Road and near Harmony Ranch Road, later in 2023, burning 9.5 acres and 4.5 acres. While fires such as these have not shown to have a significant impact on the watershed, the risk remains prominent to the water quality of the area should a large-scale fire emergency occur. Figure 8 shows historical burn areas from fires as marked by the CAL FIRE geodatabase.

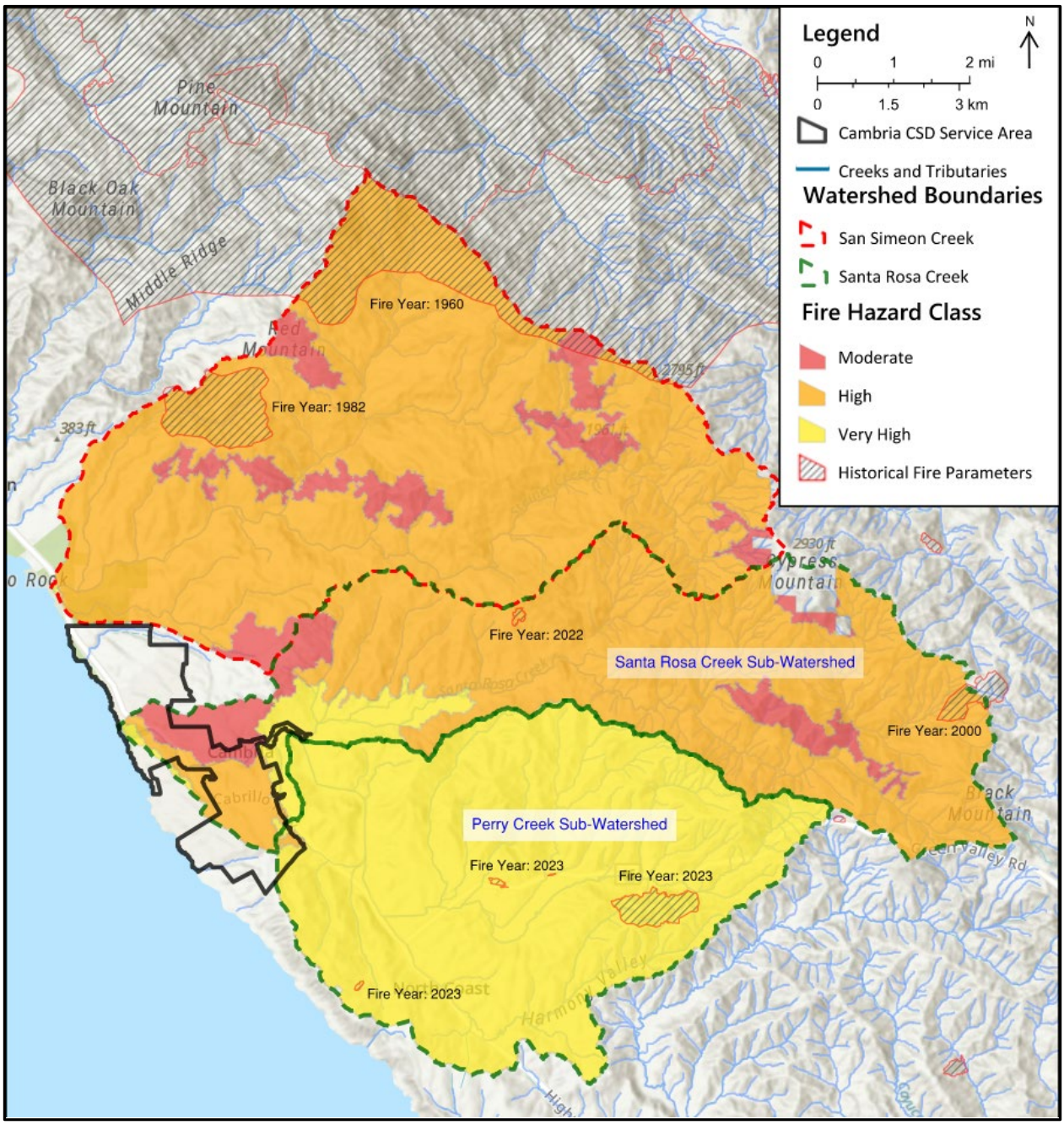

Figure 8. Watershed Fire Hazard and History

2.6.8 Mines

Mercury, used partly to amalgamate gold ore, was mined from the Little Bonanza deposit in San Luis Obispo County, as early as 1862. The Oceanic Mine located in the Santa Rosa Creek Watershed, near the Curtis Creek tributary, produced nearly as much mercury as all other mines in San Luis Obispo County combined. During a study of inactive mercury mines in SLO County, the CCRWQCB documented iron-rich, red seepage from the mine, which reportedly pollutes and discolors Curtis Creek for most of the downstream distance to Santa Rosa Creek, and the erosion of mercury-rich waste rock by Curtis Creek. The study determined that SCR was one of the most heavily impacted of the 49 studied watersheds affected by mining due to the former mill site. Studies have been implemented in the areas in and around the SRC and SSC Watersheds to identify all inactive mines, attribute specific water quality problems to the mines, and determine the best methods to abate contaminant sources. These studies are funded partially by the Clean Water Act Water Quality Planning Program. Very low trace amounts of mercury were detected in the District's drinking water wells in 2011. Since then, the mercury levels have been consistently non-detect.

2.6.9 Septic Systems

There are several septic tank systems in the SRC Watershed. Notably, several rural properties on Santa Rosa Creek Road just east of SR4 have septic tank systems. The north end of the Cambria Community Services District service area encompasses the Leimert estates, where a third of the properties are also on septic. However, this location is not adjacent to any water sources for the community. Due to their low density in the watersheds, septic systems do not pose a significant threat to water quality.

2.6.10 Changes in Sources of Contaminants

The most significant change the watershed may see is an increase in population growth in the Santa Rosa and San Simeon Creek Watersheds. This growth seen could cause a slight increase in urban developed areas and urban runoff. However, recent increases in urban development have been limited and have not been considered a significant risk for potential contaminants.

Section 3. Water Quality Data

Water quality goals and constituents of concern for surface water and groundwater are outlined by the Central Coast Regional Water Quality Control Board Basin Plan, Santa Rosa Creek Watershed Master Plan, Surface Water Ambient Monitoring Program (SWAMP), Central Coast Ambient Monitoring Program (CCAMP), and other regulations.

3.1 Constituents of Concern

The primary constituents of concern for raw water quality in both surface water and groundwater include the following:

Nutrients – Treated wastewater disposal and agricultural activities, such as cattle grazing and field crop fertilization, can contribute nutrients to surface and groundwater supplies.

Total Dissolved Solids (TDS) – High TDS can have negative environmental impacts and degrade drinking water quality. Effluent from the District's WWTP is monitored to ensure it does not exceed limitations set by the District's Discharge Order (Waste Discharge Order No. 01-100) to maintain water quality.

Hardness – Hardwater can cause mineral buildup on pipes. Customers typically use water softeners to reduce the hardness of their potable water, but this process increases the sodium and TDS concentrations in treated wastewater effluent, which percolates into the groundwater.

Sodium – Sodium can contaminate groundwater and have negative environmental impacts when discharged. Use of water softeners by individual water system customers to reduce their water hardness can contribute to increased sodium concentrations in the wastewater. This increases sodium concentrations in the treated wastewater effluent, which percolates into the groundwater.

Metals – The District monitors concentrations of lead and copper in the distribution system triennially and has been consistently under the actions levels for both constituents in recent years. The District has had a handful of samples with elevated lead levels in the past, but upgrades to the District's drinking water storage tanks in the mid-2010s resolved any lead related issues. The District completed the 2024 Lead Service Line Inventory (LSLI) required by the EPA, and verified that the District does not have any lead service lines. The District's water supply is non-corrosive. Despite the Oceanic mercury mine contamination in Santa Rosa Creek watershed, elevated mercury concentrations have not been observed in the Santa Rosa Valley Groundwater Basin.

Sulfate – While sulfate levels have been well below the SMCL in the District's drinking water in recent years, sulfate concentrations in creeks and streams have previously exceeded the recommended standard (SMCL) in both watersheds. Sources of sulfate in the watersheds include runoff and leaching from natural deposits and industrial wastes.

Organics – Due to agricultural development in the watersheds, high levels of pesticides and organics are a concern. Routine water quality testing from the potable water wells have indicated there are no detected levels of almost all organics, with a few organics present at very, very low levels within DDW guidelines.

Microbiology and turbidity – Microbiological contaminants such as bacteria, viruses, and protozoa in drinking water can cause illnesses and are heavily monitored to protect public health. The District continuously monitors turbidity and chlorine contact time, in addition to bacteriological sampling. These results are submitted to DDW as part of the District's monthly water quality reports.

Disinfection Byproducts (DBPs) – DBPs include trihalomethanes (THMs) and halo-acetic acids (HAAs). These constituents are regulated by the Disinfectants/Disinfection Byproducts Rule (D/DBP), which sets MCLs for chlorine, chlorine dioxide, chloramines, THMs, HAAs, bromate, and chlorite, etc. Testing conducted by the District indicates very low levels of THMs and HAAs in the distribution system, indicating low levels of organic material in the District's source water.

Radiological Constituents – Radioactive contaminants found in drinking water are regulated by the United States Environmental Protection Agency (EPA). The District's wells have been historically well below the MCL for radioactive contaminant levels, with the most recent groundwater samples non-detect.

3.2 Surface Water Quality

Surface water quality is monitored throughout the SSC and SRC watersheds to identify potential contaminants and prevent them from infiltrating the groundwater, the only source of drinking water for the District.

3.2.1 Surface Water Quality Objectives

The CCRWQCB Basin Plan (Basin Plan) summarizes surface water quality objectives for Santa Rosa Creek. These objectives are annual mean values based on the preservation of existing surface water quality or surface water quality enhancement believed attainable following control of point sources. These surface water quality objectives are summarized in Table 12.

Table 12. CCRWQCB Basin Plan Santa Rosa Creek Water Quality Objectives

Constituent	Median Surface Water Quality Objectives (mg/L)
TDS	500
Cl	50
SO_4	80
B	0.2
Na	50

3.2.2 Surface Water Quality Effects on Beneficial Uses

The CCRWQCB Basin Plan designates several beneficial uses for Santa Rosa Creek, including municipal and domestic supply, groundwater recharge, non-contact water recreation, fishing, and migration of aquatic organisms, among others. The Santa Rosa Creek Watershed Master Plan has identified constituents of concern in Santa Rosa Creek which occasionally exceed the water quality parameters for surface water during certain times of the year, limiting the beneficial uses of the creek during those periods. These constituents include TDS, sulfates, sodium, and chloride. These constituents are sampled at the wells in the SRC watershed and reported on the DDW Water Watch website.

The Basin Plan designates similar beneficial uses for San Simeon Creek with the addition of it being a habitat for endangered species, such as the Central California Coast Steelhead. In San Simeon Creek, contamination from effluent deposited by the District's WWTP is monitored. Notable concerns from this effluent are Nitrates, Dissolved Oxygen, Total Dissolved Solids, and Sodium.

3.2.3 Surface Water Quality Data

The Surface Water Ambient Monitoring Program (SWAMP) is designed as an ongoing program to assess the effectiveness of State Water Resources Control Board and local Regional Water Quality Control Board regulatory water quality programs by creating a statewide picture of the status and trends in surface water quality and developing site-specific information in areas that are known or suspected to have water quality problems.

The CCAMP, which has been underway since 1997, represents the Central Coast Region's participation in the statewide SWAMP program. The following tables (Table 13-Table 16) show the historical water quality for SSC (CCAMP Sites 310-SSC and 310-SSU) and SRC (CCAMP Sites 310-SRO and 310-SRU). A significant contamination from surface contaminants in the watershed would hopefully be detected by CCAMP or other monitoring/observation programs before entering the groundwater basins and contaminating the groundwater. The data from the CCAMP monitoring program also provides a good summary of historical

water quality in the creeks, which is indicative of the cleanliness of the watershed. The data in tables below was sourced from the CCAMP Data Navigator. The CCAMP Monitoring locations are shown in Figure 9.

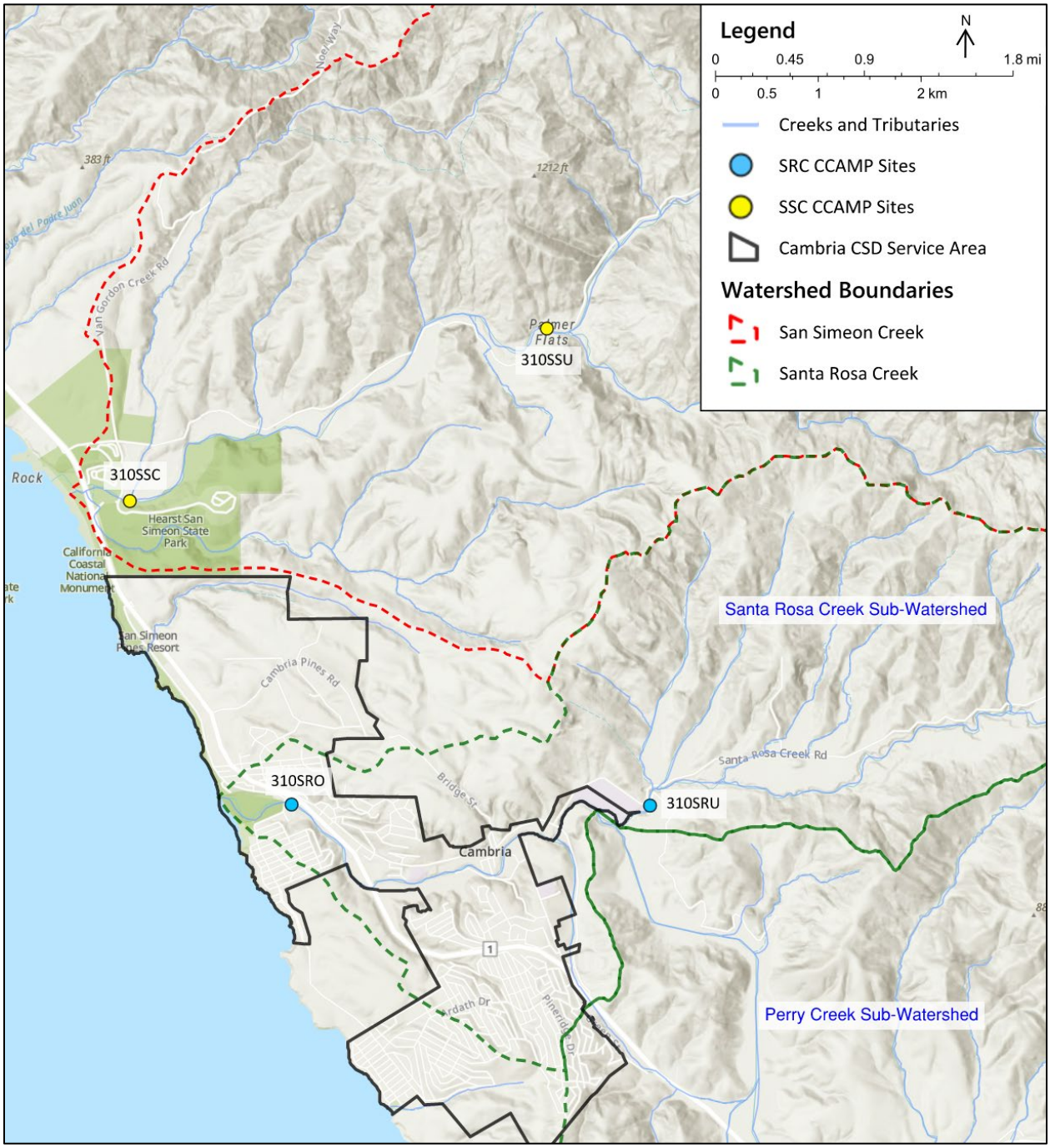

Figure 9. CCAMP Monitoring Locations

Table 13. San Simeon Creek Water Quality Data (Site 310-SSC)

Analyte Name	Units	Min	Mean	Median	Max	Samples	Dates	Aquatic Life Goal	Human Health Goal
Algae-filamentous	%	0	30	8	99	22	2001-2004	50	-
Algae-floating mats	%	0	12.16	2	90	112	2012-2023	20	-
Alkalinity as CaCO3	ug/l	110,000	297.5	335,000	410,000	8	2009-2023	20,000	-
Ammonia as N, Total	mg/l	0.003	0.047	0.015	1.6	221	2001-2023	1.9	30
Ammonia as N, Unionized	mg/l	2.25E-05	0.001	0.0002	0.012	115	2001-2012	0.025	-
Boron	mg/l	0.063	5.74	0.33	520	97	2012-2023	1.5	1
Boron, Dissolved	mg/l	0.072	0.327	0.3	3.3	199	2001-2020	1.5	1
Calcium	mg/l	20	73.1	65	370	97	2012-2023	-	-
Calcium Dissolved (as Ca)	mg/l	12	60.9	63	140	114	2001-2012	-	-
Chloride	mg/l	4	271.8	130	13,000	207	2001-2023	122	250
Chlorophyll a	ug/l	0	28.9	2	1,471	229	2001-2023	15	-
Coliform, E. coli	MPN/100ml	4.1	277.2	56	9,100	179	2005-2022	-	126
Coliform, Fecal	MPN/100ml	2	474.0	80	35,000	203	2001-2019	-	200
Coliform, Total	mpn/100ml	31	3,830	540	160,988	205	2001-2020	-	1,000
Flow, Field Measurement	mg/l	0.0002	7.55	0.831	70.3	43	2005-2017	-	-
Hardness as CaCO3	cfs	120	420.8	340	4,500	127	2001-2023	-	-
Nitrate as N	mg/l	0.005	5.54	2.55	28	220	2001-2023	1	10
Nitrate, Nitrite as N	mg/l	0.01	5.56	2.52	28.14	118	2001-2019	1	10
Nitrite as N	mg/l	0.0007	0.038	0.024	0.54	221	2001-2023	0.15	1
Nitrogen, Total	mg/l	0.25	5.49	2.638	28.44	180	2001-2020	2.3	-
Nitrogen, Total Kjeldahl	mg/l	0.018	0.59	0.26	33	214	2001-2023	2.3	-
OrthoPhosphate as P	mg/l	0.002	0.74	0.72	2.3	220	2001-2023	0.13	-
Oxygen, Dissolved	mg/l	1.46	6.32	6.03	29.28	502	2001-2023	7	-
Oxygen, Saturation	mg/l	15	64.17	61.4	342	500	2001-2023	85	-
pH	%	6.65	7.42	7.36	8.62	499	2001-2023	-	-
Phosphorous as P	-log[H+]	0.005	0.844	0.86	7.6	211	2001-2023	0.122	0.0001
Salinity	mg/l	0.05	0.821	0.6	23.42	232	2001-2023	-	-
Silica as SiO2	ppt	5.4	25.69	24	130	97	2012-2023	-	-
Sodium	mg/l	5.9	175.8	110	6,600	206	2001-2023	-	20
Specific Conductivity	mg/l	131.3	1,301	1,134	36,942	430	2001-2023	1,460	900
Sulfate	uS/cm	9,400	108,455	74,000	1,800,000	80	2001-2023	-	500,000
Suspended Solids, Total	mg/l	0.115	34.32	2	2,200	218	2001-2023	30	-
Total Dissolved Solids (TDS)	mg/l	25	597.8	403.5	20,000	642	2001-2023	-	1,000
Turbidity	ntu	0	30.99	0.6	3,000	235	2001-2023	25	1
Urea	mg/l	4	12.35	5	333	110	2008-2022	-	-
Water Tempature	Degrees C	8.64	16.01	16.14	21.41	501	2001-2023	18	-

Table 14. San Simeon Creek Water Quality Data (Site 310-SSU)

Analyte Name	Units	Min	Mean	Median	Max	Samples	Dates	Aquatic Life Goal	Human Health Goal
Algae-filamentous	%	0	15	2	60	9	2002-2003	50	-
Algae-floating mats	%	0	1.2	0	5	5	2015-2015	20	-
Alkalinity as CaCO3	ug/l	190,000	246,000	255,000	285,000	5	2009-2016	20,000	-
Ammonia as N, Total	mg/l	0.005	0.016	0.013	0.045	24	2002-2016	1.9	30
Ammonia as N, Unionized	mg/l	0.0001	0.0004	0.0002	0.0011	15	2002-2009	0.025	-
Boron	mg/l	0.21	0.246	0.24	0.3	5	2015-2015	1.5	1
Boron, Dissolved	mg/l	0.1	0.217	0.22	0.24	17	2002-2015	1.5	1
Calcium	mg/l	18	40.8	49	52	5	2015-2015	-	-
Calcium Dissolved (as Ca)	mg/l	13	43.06	46	54	16	2002-2009	-	-
Chloride	mg/l	4.8	13.14	12.5	18	20	2002-2016	122	250
Chlorophyll a	ug/l	0	3.4	0.8	43.87	21	2002-2015	15	-
Coliform, E. coli	MPN/100 ml	16.9	487.4	122.1	4,500	12	2009-2015	-	126
Coliform, Fecal	MPN/100 ml	21	388.4	130	5,000	21	2002-2015	-	200
Coliform, Total	mpn/100 ml	79	3,360	300	50,000	21	2002-2015	-	1,000
Flow, Field Measurement	cfs	0.191	3.44	0.48	12.59	4	2009-2009	-	-
Hardness as CaCO3	mg/l	93	254.88	269	330	16	2002-2015	-	-
Nitrate as N	mg/l	0.004	0.094	0.033	0.88	22	2002-2016	1	10
Nitrate, Nitrite as N	mg/l	0.006	0.091	0.024	0.919	18	2002-2011	1	10
Nitrite as N	mg/l	0.002	0.007	0.005	0.039	22	2002-2016	0.15	1
Nitrogen, Total	mg/l	0.02	0.345	0.212	3.92	24	2002-2016	2.3	-
Nitrogen, Total Kjeldahl	mg/l	0.018	0.278	0.11	3	22	2002-2016	2.3	-
OrthoPhosphate as P	mg/l	0.002	0.018	0.006	0.1	24	2002-2016	0.13	-
Oxygen, Dissolved	mg/l	8.58	10.45	10.5	12.12	26	2002-2016	7	-
Oxygen, Saturation	%	89.4	99.73	100.2	111.4	22	2002-2016	85	-
pH	-log[H+]	7.75	8.11	8.1	8.84	24	2002-2016	-	-
Phosphorous as P	mg/l	0.006	0.036	0.01	0.39	24	2002-2016	0.122	0.0001
Salinity	ppt	0.06	0.253	0.27	0.37	26	2002-2016	-	-
Silica as SiO2	mg/l	17	20	19	26	6	2015-2016	-	-
Sodium	mg/l	5.6	16.86	18	23	17	2002-2015	-	20
Specific Conductivity	umhos/cm	133	480.4	533.6	629	27	2002-2016	1,460	900
Sulfate	ug/l	39,000	46,142	45,000	60,000	7	2002-2011	-	500,000
Suspended Sediment Concentration	mg/l	1			1	2	2011-2011	400	-
Suspended Solids, Total	mg/l	0.115	22.61	0.82	470	23	2002-2015	30	-
Total dissolved Solids (TDS)	mg/l	40	203.2	210	360	63	2002-2015	-	1,000
Turbidity	ntu	0	24.57	1.7	525	25	2002-2015	25	1
Water Tempature	Degrees C	8.9	14.56	14.74	21.82	26	2002-2016	18	-

Table 15. Santa Rosa Creek Water Quality Data (Site 310-SRO)

Analyte Name	Units	Min	Mean	Median	Max	Samples	Dates	Aquatic Life Goal	Human Health Goal
Algae-filamentous	%	0	11	2	90	23	2001-2004	50	-
Algae-floating mats	%	0	2.544	0	60	79	2012-2023	20	-
Alkalinity as CaCO3	ug/l	210,000	337,500	370,000	420,000	8	2009-2023	20,000	-
Ammonia as N, Total	mg/l	0.0025	0.030	0.015	0.94	176	2001-2023	1.9	30
Ammonia as N, Unionized	mg/l	3.05E-05	0.001	0.0005	0.019	102	2001-2012	0.025	-
Boron	mg/l	0.056	0.199	0.18	0.62	67	2012-2022	1.5	1
Boron, Dissolved	mg/l	0.06	0.182	0.17	0.62	158	2001-2020	1.5	1
Calcium	mg/l	37	81.75	79	230	68	2012-2023	-	-
Calcium Dissolved (as Ca)	mg/l	16	69.91	72	87	101	2001-2012	-	-
Chloride	mg/l	9.4	101.5	45	2,400	165	2001-2023	122	250
Chlorophyll a	ug/l	0	2.036	1.1	53.47	173	2001-2023	15	-
Coliform, E. coli	MPN/100 ml	1	607	99	22,000	137	2005-2022	-	126
Coliform, Fecal	MPN/100 ml	7.8	1197	130	50,000	158	2001-2019	-	200
Coliform, Total	mpn/100 ml	27	7147	900	160,000	160	2001-2020	-	1,000
Flow, Field Measurement	cfs	0	6.93	1.05	84.469	44	2005-2022	-	-
Hardness as CaCO3	mg/l	95	449.9	437	1700	98	2001-2023	-	-
Nitrate as N	mg/l	0.0043	0.151	0.051	1.3	174	2001-2023	1	10
Nitrate, Nitrite as N	mg/l	0.0049	0.156	0.054	1.37	103	2001-2019	1	10
Nitrite as N	mg/l	0.0007	0.006	0.005	0.071	176	2001-2023	0.15	1
Nitrogen, Total	mg/l	0.0091	0.433	0.25	9.91	152	2001-2020	2.3	-
Nitrogen, Total Kjeldahl	mg/l	0.018	0.312	0.2	8.9	171	2001-2023	2.3	-
OrthoPhosphate as P	mg/l	0.0023	0.038	0.029	0.37	174	2001-2023	0.13	-
Oxygen, Dissolved	mg/l	0.3	8	8.28	14.37	261	2001-2023	7	-
Oxygen, Saturation	%	3.4	80.73	81.25	160.1	258	2001-2023	85	-
pH	-log[H+]	6.78	7.9	7.89	8.7	258	2001-2023	-	-
Phosphorous as P	mg/l	0.005	0.099	0.032	6.5	167	2001-2023	0.122	0.0001
Salinity	ppt	0.09	0.537	0.46	5.69	186	2001-2023	-	-
Silica as SiO2	mg/l	12	25.99	21	170	68	2012-2023	-	-
Sodium	mg/l	12	64.26	40	1,300	164	2001-2023	-	20
Specific Conductivity	umhos/cm	190	1,003	866	11,600	238	2001-2023	1,460	900
Sulfate	ug/l	16,000	102,090	103,000	410,000	66	2001-2023	-	500,000
Suspended Solids, Total	mg/l	0.115	79.63	2	7,700	174	2001-2023	30	-
Total Dissolved Solids (TDS)	mg/l	40	436.4	400	6,000	511	2001-2023	-	1,000
Turbidity	ntu	0	45.36	0.5	3,000	190	2001-2023	25	1
Urea	mg/l	4	145.5	4	10,000	78	2009-2022	-	-
Water Tempature	Degrees C	5.65	16.42	17.01	23.74	261	2001-2023	18	-

Table 16. Santa Rosa Creek Water Quality Data (Site 310-SRU)

Analyte Name	Units	Min	Mean	Median	Max	Samples	Dates	Aquatic Life Goal	Human Health Goal
Algae-filamentous	%	0	9	8	33	12	2002-2003	50	-
Algae-floating mats	%	0	0.875	0	5	8	2015-2015	20	-
Alkalinity as CaCO3	ug/l	350,000			440,000	3	2009-2016	20,000	-
Ammonia as N, Total	mg/l	0.005	0.021	0.013	0.06	35	2002-2016	1.9	30
Ammonia as N, Unionized	mg/l	8.25E-05	0.001	0.0003	0.003	26	2002-2009	0.025	-
Boron	mg/l	0.16	0.179	0.19	0.19	7	2015-2015	1.5	1
Boron, Dissolved	mg/l	0.1	0.182	0.18	0.23	27	2002-2015	1.5	1
Calcium	mg/l	73	84.14	81	110	7	2015-2015	-	-
Calcium Dissolved (as Ca)	mg/l	19	69.44	74	83	26	2002-2009	-	-
Chloride	mg/l	8.7	19.73	21	25	28	2002-2016	122	250
Chlorophyll a	ug/l	0	2.346	0.6	55.95	35	2002-2015	15	-
Coliform, E. coli	MPN/100 ml	14	1,133	110	18,000	19	2009-2015	-	126
Coliform, Fecal	MPN/100 ml	13	1,819	130	50,000	33	2002-2015	-	200
Coliform, Total	mpn/100 ml	40	7,071	500	160,000	33	2002-2015	-	1,000
Flow, Field Measurement	cfs	0.385	2.22	1.101	7.55	10	2009-2015	-	-
Hardness as CaCO3	mg/l	96	407.1	421.5	470	22	2002-2015	-	-
Nitrate as N	mg/l	0.004	0.156	0.094	1.4	35	2002-2016	1	10
Nitrate, Nitrite as N	mg/l	0.006	0.160	0.099	1.456	27	2002-2009	1	10
Nitrite as N	mg/l	0.004	0.011	0.005	0.056	35	2002-2016	0.15	1
Nitrogen, Total	mg/l	0.028	0.652	0.25	10.52	35	2002-2016	2.3	-
Nitrogen, Total Kjeldahl	mg/l	0.018	0.515	0.2	9.8	35	2002-2016	2.3	-
OrthoPhosphate as P	mg/l	0.005	0.040	0.024	0.27	35	2002-2016	0.13	-
Oxygen, Dissolved	mg/l	6.3	9.203	9	14.43	87	2002-2016	7	-
Oxygen, Saturation	%	63.7	93.67	90.5	161.1	85	2002-2016	85	-
pH	-log[H+]	7.57	8.062	8.04	8.9	85	2002-2016	-	-
Phosphorous as P	mg/l	0.006	0.273	0.022	7.6	35	2002-2016	0.122	0.0001
Salinity	ppt	0.07	0.401	0.42	0.5	38	2002-2016	-	-
Silica as SiO2	mg/l	21	26	22	52	8	2015-2016	-	-
Sodium	mg/l	11	27.02	27	32	27	2002-2015	-	20
Specific Conductivity	umhos/cm	151.3	761.4	811.2	958	39	2002-2016	1,460	900
Sulfate	ug/l	44,000	99,454	105,000	120,000	11	2002-2015	-	500,000
Suspended Solids, Total	mg/l	0.115	419.5	1.1	13,000	33	2002-2015	30	-
Total Dissolved Solids (TDS)	mg/l	70	331.8	342	590	102	2002-2015	-	1,000
Turbidity	ntu	0	58.37	0.1	1,139	37	2002-2015	25	1
Water Tempature	Degrees C	9.47	16.54	16.87	22.17	87	2002-2016	18	-

3.3 Groundwater and WWTP Effluent Water Quality

3.3.1 Groundwater Objectives

3.3.1.1 Santa Rosa Valley Groundwater Basin Objectives

Basin Plan objectives for groundwater in the Santa Rosa Valley Groundwater Basin are summarized in Table 17. These objectives are intended to serve as a water quality baseline for evaluating water quality management in the Santa Rosa Valley Groundwater Basin. The objectives shown are median values based on data averages. They are set to preserve existing water quality or enhance water quality to an attainable level following control of point sources. Water in the Santa Rosa Valley Groundwater Basin has consistently met these objectives.

Table 17. CCRWQCB Basin Plan Santa Rosa Valley Groundwater Objectives

Constituent	Median Groundwater Quality Objectives (mg/L)
TDS	700
Cl	100
SO_4	80
B	0.2
Na	50
N	5

3.3.1.2 San Simeon Valley Groundwater Basin Objectives

There are no water quality objectives for the San Simeon Valley Groundwater Basin in the Basin Plan, however, San Simeon Creek Watershed is has been listed as impaired under Clean Water Act Section 303(d) due to the water exceeding water quality standards for nitrate, dissolved oxygen, sodium, and chloride in past years. The Draft San Simeon Creek Total Maximum Daily Load (TMDL) report, prepared by the CCRWQCB, addresses this impairment by identifying the probably sources of pollution, establishing the maximum amount of pollution the stream can receive while still meeting water quality standards, and allocating that amount to all probable contributing sources. One of the sources described in the draft TMDL was the potential impact of land discharge of wastewater effluent from the Cambria WWTP on sub-surface flow in San Simeon Creek. The report developed waste load allocations by reviewing data from CCAMP and determining what concentration of discharge may be permitted to improve water quality. The Draft TMDL Report concluded that wastewater discharge along with other discharge sources such as agricultural runoff shall not cause the San Simeon Creek to exceed the following:

- 1.3 mg/L Total Nitrogen during the dry season (July-December)
- 10 mg/L Nitrate as N
- 0.05 mg/L Total Phosphorous (P) during the dry season
- 69 mg/L Sodium (Na)
- 106 mg/L Chloride (Cl)

The Draft TMDL also concluded that the WWTP effluent discharge percolating into San Simeon Creek impairs its beneficial uses for municipal and domestic supply, agricultural supply, and cold freshwater

habitat. This report did not get published due to the District improving their effluent treatment to meet the recommended requirements.

The District's WWTP operates under a waste discharge Permit (Waste Discharge Requirements Order No. 01-100) which requires them to monitor the water quality of their effluent. This Permit requires the District to sample their WWTP effluent for Nitrate (N-NO3), Sodium (Na), Total Dissolved Solids (TDS), and Dissolved Oxygen (DO). This effluent is delivered to the percolation ponds in the SSC watershed and percolates into San Simeon Valley Groundwater Basin downgradient of the District's San Simeon Wellfield. The District is not currently required to sample Total Phosphorous or Chloride in its effluent as it is not required by their permit. Each of the constituents monitored in the WWTP effluent as required by the District's discharge Permit is described below.

Nitrate (measured as nitrogen, abbreviated as NO3-N) – Nitrate is a nutrient that requires monitoring to prevent groundwater contamination and other negative environmental impacts. The Draft San Simeon Creek TMDL Report identified the water quality objective for nitrate in the receiving water column (San Simeon Creek Valley Groundwater Basin) at no greater than 10 mg/L (NO3-N), and no greater than 1.3 mg/L total nitrogen during July through December. The District's WWTP permit does not require the effluent meet a certain limit, but cannot cause nitrate concentrations in the groundwater downgradient of the disposal area to exceed the drinking water MCL of 10 mg/L NO3-N.

Sodium (Na) – Sodium can contaminate groundwater and have other negative environmental impacts when discharged. Use of water softeners by individual water system customers to reduce their water hardness can contribute to increased sodium concentrations in the wastewater which percolates into the groundwater. The Draft TDML concluded that discharges shall not cause the receiving waters to exceed a concentration of 69 mg/L for Na. The current WWTP discharge permit does not have a requirement for the concentrations of sodium in the effluent however, it does express that the discharge shall not cause a significant increase in mineral constituent concentrations in underlying groundwaters.

Total Dissolved Solids (TDS) – TDS is important to monitor as high TDS can have negative environmental impacts. The WWTP permit requires the District maintain a 30-day mean effluent TDS concentration not exceeding 1,000 mg/L, with no given day exceeding the daily instantaneous limit of 1,500 mg/L. The District currently takes daily grab samples and reports TDS lab samples quarterly at the WWTP to comply with these regulations. Pumping of the San Simeon Valley Groundwater Basin groundwater is currently used to reduce the TDS concentrations in the District's drinking water and subsequently the wastewater effluent to mitigate against elevated TDS concentrations. TDS concentrations in the wastewater effluent may be elevated due to potential seawater infiltration into the collection system associated with early season rain events.

Dissolved Oxygen (DO) – DO concentrations are measured monthly and are required to be at least 2.0 mg/L when discharging to percolation ponds. DO is required to support the aerobic bacteria that break down organic matter in the effluent.

3.3.2 Groundwater Data

3.3.2.1 Santa Rosa Valley Groundwater Data

In the most recent round of tests on the DDW Water Watch site for raw water from SR3 and SR4 the detected concentrations for TDS and Na were at, or under the water quality objectives. Results for sulfate (SO4) remained under the SMCL of 250 mg/L but exceeded the Basin Plan objective of 80 mg/L, with measured concentrations 128 mg/L and 133 mg/L in SR3 and SR4, respectively. There have been a few exceedances of iron and manganese, in the raw well water, in the last five years. All other constituents with a groundwater objective outlined in the Basin Plan displayed concentrations well below their objectives in the most recent round of tests at SR3 and SR4 in July 2023.

3.3.2.2 San Simeon Valley Groundwater Data

Review of water quality sampling results from DDW Water Watch indicated no MCL/SMCL exceedances in the San Simeon wells SS1, SS2, and SS3 for any constituents since the last WSS update in 2015. The most recent exceedances in 2011 for iron, nitrate, and turbidity.

3.3.2.3 WWTP Effluent

The San Simeon Valley Groundwater Basin water quality can be impacted by effluent from the District's WWTP effluent, which is disposed of via percolation ponds in close proximity to the SSC. WWTP Effluent water quality data for 2023 is shown in Figure 10 and Table 18 below. Each parameter is monitored monthly or quarterly, as required by the Draft San Simeon Creek TMDL report, to demonstrate that the percolated WWTP effluent is not adversely impacting the San Simeon Valley Groundwater Basin. The data was obtained from the District's WWTP Annual Reports. Higher concentrations in TDS in the October sample can be attributed to high TDS in stormwater capture during the beginning of the wet season in middle to late fall.

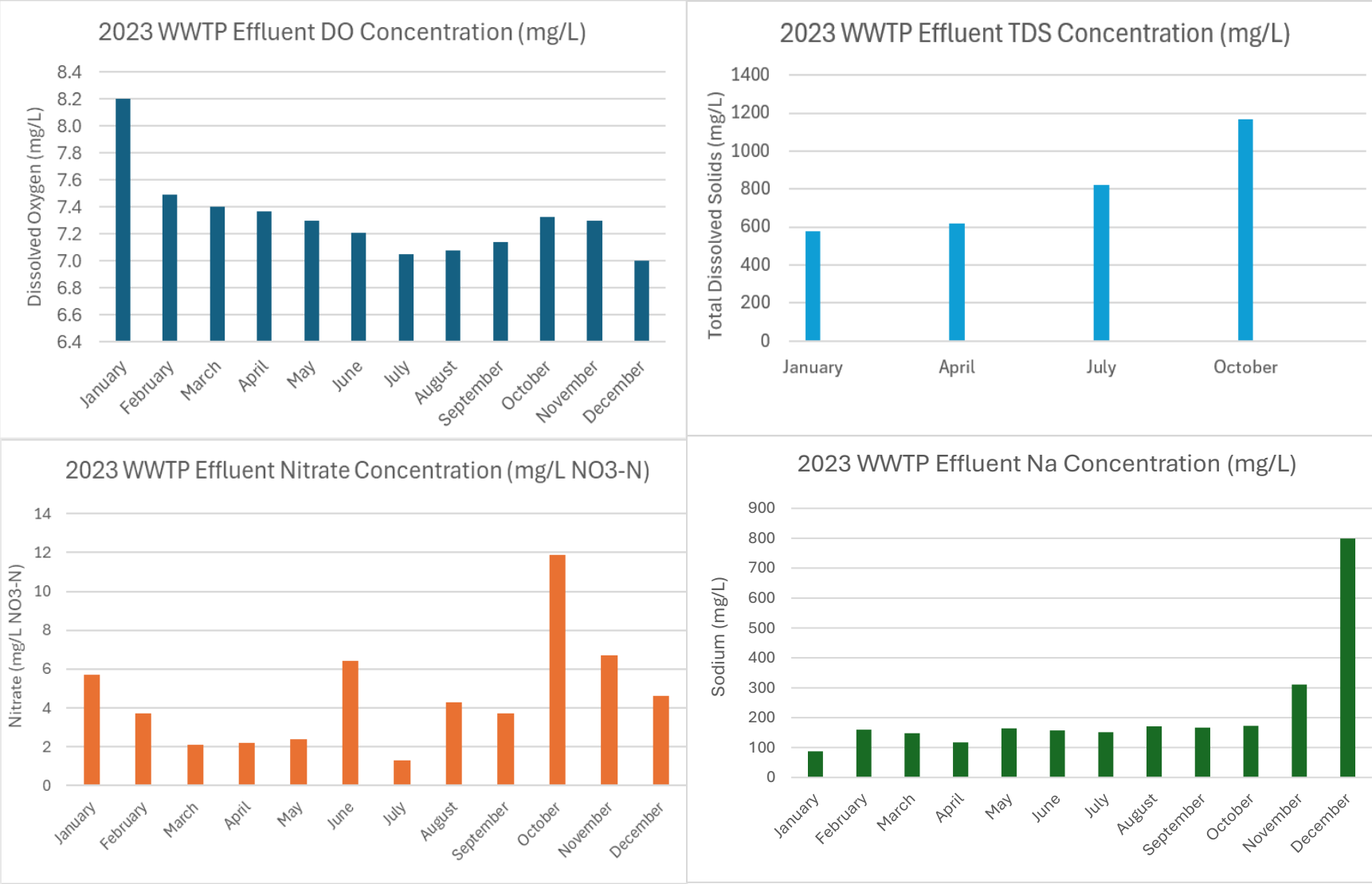

Figure 10. Charts of 2023 WWTP Effluent Water Quality for DO, TDS, NO3-N, and Na

Table 18. 2023 WWTP Effluent Water Quality Data

Month	DO (mg/L)	NO3-N (mg/L)	Na (mg/L)	TDS (mg/L)
January	8.2	5.7	87.2	576
February	7.5	3.7	160	-
March	7.4	2.1	148	-
April	7.4	2.2	117	620
May	7.3	2.4	164	-
June	7.2	6.4	157	-
July	7.1	1.3	151	820
August	7.1	4.3	171	-
September	7.1	3.7	167	-
October	7.3	11.9	173	1170
November	7.3	6.7	311	-
December	7.0	4.6	799	-

Historic water quality data for the WWTP effluent is shown in Table 19 below. The data was obtained from the previous sanitary surveys and the WWTP Annual Reports provided by the District. The reduction in nitrate concentrations seen in recent years is attributed to modifications to the secondary treatment process, which uses an activated sludge process to simulate a Modified Ludzak-Ettinger (MLE) process to reduce nitrate in the effluent. This modification was prompted by the implementation of the WRF project. The WRF project required that the WWTP reduce the nitrate concentration in the effluent to 2.3 mg/L NO3-N or lower to ensure the source water for the WRF was of the required water quality. The WWTP effluent is discharged to percolation ponds in the San Simeon Creek Watershed, where it then percolates into the shallow basin, and is then extracted and send to headworks at the WRF.

Table 19. Cambria WWTP Effluent Nitrate, TDS, Na, and DO Concentrations

Year	Annual Average NO3-N Concentration (mg/L)	Total Dissolved Solids (mg/L)	Sodium (mg/L)	Dissolved Oxygen (mg/L)
2023	4.6	797	217	7.3
2022	1.8	863	175	7.4
2021	2.1	1078	252	7.4
2020	3.2	845	163	7.2
2019	4.3	1308	279	7.3
2018	2.5	895	177	6.9
2017	3.0	798	152	6.9
2016	2.1	130	261	6.2
2015	20.0	1056	207	2.3
2014	36.1	1077	182	3.1
2013	23.3	872	167	3.0
2012	30.7	952	182	3.9
2011	28.8	829	152	-
2010	24.0	847	165	-
2009	35.2	840	163	3.6
2008	31.5	840	155	-
2007	22.5	945	174	-
2006	36.3	866	169	-
2005	17.6	857	131	-
2004	15.6	847	138	-
2003	34.5	905	155	6.0
2002	17.6	860	203	7.4

3.4 Potable Water System Water Quality

Source water samples are collected at the District's SR and SS wells. Water from the SS wells is dosed with sodium hypochlorite at the wellhead. Water from SR3 and SR4 is treated for iron and manganese via filter units at each well. Sodium hypochlorite and ferric chloride are dosed before filtration to induce coagulation. After treatment, water is delivered to clear well tanks for disinfection contact time before entering the distribution system. The water then travels through the distribution system before going to storage tanks around Cambria with a total capacity of 1,750,000 gallons. Booster pump stations "lift" water to the tanks, located at higher elevations than the homes they serve. The wells pump water until demand is met and tanks are full. The tank levels are monitored regularly to ensure there is sufficient water to meet customer and firefighting needs.

In the past, raw water from the Santa Rosa Valley Groundwater Basin wells has exceeded or approached the secondary MCL for manganese (50 µg/L), but the filter units reduce manganese concentrations significantly below the secondary MCL before it is served to the District's customers. The District's 2023 Consumer Confidence Report (CCR) indicated no violations of primary or secondary MCLs for the potable water system.

Section 4. Requirements of the Surface Water Treatment Rule (SWTR)

4.1 Surface Water Treatment Rule

The Surface Water Treatment Rule (SWTR) is a regulation that applies to all public water systems using surface water or ground water under the direct influence of surface water (GWUDI). The SWTR mandates that GWUDI systems treat their water through disinfection and filtration, with specific limits for individual and combined filter effluent. Additionally, the SWTR imposes a treatment technique requirement to control microbes, including a four-log removal of viruses and a three-log removal of *Giardia lamblia*.

The SWTR specifies that 95% of the measurements taken every month must have turbidity concentrations at or below 0.3 NTU (see Average Treated column in Table 20 below). The SWTR also requires that filtered water turbidity may not exceed 5.0 NTU at any time. As part of the continuous turbidity monitoring mandated by the SWTR, measurements are taken, recorded, and reported in 4-hour intervals.

SR3 and SR4 produce GWUDI water and have filters at each site to lower turbidity. There have been no historical violations of the 0.5 NTU limit in the treated water at wells SR3 and SR4. The turbidity data of wells SR3 and SR4 are shown in Table 20. Samples are not collected when the wells are not in use.

Table 20. Santa Rosa Wells Turbidity Data

Months		SR3		SR4	
		Peak Raw Turbidity (NTU)	Average Treated Turbidity (NTU)	Peak Raw Turbidity (NTU)	Average Treated Turbidity (NTU)
2023	January	-	-	2	0.049
	February	-	-	3.2	0.054
	March	-	-	1.1	0.037
	April	-	-	-	-
	May	-	-	0.1	0.045
	June	-	-	1.8	0.049
	July	-	-	1.5	0.053
	August	-	-	3	0.06
	September	-	-	2.1	0.059
	October	-	-	3.9	0.065
	November	-	-	1.3	0.069
	December	-	-	0.4	0.08
2022	January	-	-	11.3	0.04
	February	-	-	-	-
	March	-	-	-	-
	April	-	-	-	-
	May	-	-	-	-
	June	0.7	0.038	-	-
	July	0.2	0.033	-	-
	August	0.2	0.039	2.9	0.064
	September	0.5	0.035	2.1	0.043
	October	-	-	9.5	0.046
	November	-	-	3.1	0.046
	December	-	-	-	-

As described in Section 2.1, the Santa Rosa Creek wells have treatment facilities that provide iron and manganese removal, filtration and disinfection. The District tracks the effluent concentration of iron and manganese for SR3 and SR4, the two Santa Rosa wells that are used to produce drinking water. The results for 2024 and 2014 from the previous WSS are summarized in Table 21. Results are typically below the SMCLs of 300 µg/L for iron and 50 µg/L for manganese. There are no recent results for SR3 because it has not been in operation in recent years.

Table 21. Santa Rosa Wells Iron and Manganese Effluent Results

Santa Rosa Well 3			Santa Rosa Well 4		
Report Date	Sample Results (µg/L)		Report Date	Sample Results (µg/L)	
	Iron	Manganese		Iron	Manganese
--	--	--	6/21/2024	ND	ND
--	--	--	5/21/2024	ND	ND
--	--	--	5/3/2024	ND	ND
12/16/2014	170	ND	12/22/2014	ND	0.8
11/17/2014	140	0.8	12/16/2014	110	ND
11/10/2014	310	ND	11/17/2014	100	3.5
10/24/2014	130	ND	11/10/2014	100	ND
10/16/2014	190	1	10/24/2014	110	ND
9/30/2014	120	ND	10/16/2014	110	1.8
9/22/2014	110	ND	9/30/2014	100	0.6
9/11/2014	140	ND	9/22/2014	70	ND
9/2/2014	230	ND	9/11/2014	80	ND
8/21/2014	130	ND	9/2/2014	230	ND

Section 5. Control and Management

The District completed various projects in the SRC and SSC Watersheds and for its potable water system, and is currently working on additional projects. Proper maintenance and management of these facilities is not only necessary to deliver safe water to the District's customers, but also to maintain the quality of the source water in the San Simeon Valley and Santa Rosa Valley Groundwater Basins.

5.1 San Simeon Transmission Water Main

On December 23rd, 2021, the transmission water main that supplies water from the San Simeon Well Field to the District water distribution system develop a significant leak. All San Simeon well pumps were turned off and an external engineering contractor was requested to assist in inspecting the break and develop solutions for repair. The break was located near the San Simeon Creek Campground area, so the District obtained a permit from California State Parks to perform emergency repairs. Two weeks later on January 6th, 2022, the main was repaired by installing approximately 3,000 feet of temporary HDPE 12" pipe to bypass the section of the main that developed a leak. After pressure testing and disinfection, the temporary pipeline was activated on January 10th, 2022, to allow the San Simeon Well Field to resume delivery of water to the distribution system. Plans to permanently replace the failed transmission main are currently under development.

During the time the San Simeon Wells were offline, the sole water source for the District was SR4. SR4 was capable of supplying water for the District during this emergency condition.

5.2 Stuart Street Tanks Replacement

An agreement for engineering design and construction services with MKN & Associates, Inc. was approved on January 11th, 2024, to replace the Stuart Street Tanks. Construction is anticipated to begin in Winter 2025, with each tank being replaced one at a time and taking roughly 6 months per tank to remove and rebuild. The existing tank pads are insufficient, so the contractor will be removing the existing pads and constructing new ones.

5.3 WWTP SST Upgrades

The District WWTP is currently being upgraded. Many of these upgrades are being completed to replace aging and outdated infrastructure at the WWTP, which has not been significantly upgraded since 1993. Many of the upgrades are part of the PG&E Sustainable Solutions Turnkey (SST) Program which combines many services into one source to help customers like the District in completing comprehensive energy and infrastructure projects which enhance facility performance while reducing operating costs and environmental footprint. Upgrades and replacements are being done on the influent flow equalization tank and lift station, the MLE Process, the Blower System, RAS/WAS Pumping, backup power, SCADA system, and sewer lift stations (B1 and B4). Many of these upgrades are still in progress or have not yet been started. The project is scheduled to be completed in late fall of 2025.

5.4 San Simeon Well 3

In June 2024, the District replaced the pump and motor on San Simeon Well 3. The replacement is due to the aging infrastructure which has been in place since 1985. The removal of the existing well components began on June 10th, 2024. Afterwards, a video observation of the existing casing was performed, and it was determined to be in excellent condition.

5.5 Santa Rosa Well 4

In 2022, SR4 required unplanned repairs during the dry season, because the well was producing a marginal amount of silt and only 40% of its typical flowrate. Two small tubercles (a mineral buildup or hard nodule formed from suspended minerals from corrosion of iron/steel pipe) had grown from the inside and breached the exterior wall of the pipe at 81 and 91 feet below surface. These breaches allowed silt to enter the well, which interfered with the pump and its capacity. To address the issue, the submersible pump and motor were replaced, and swage patches were used to close the holes in the well casing. SR4 came back online on August 25th, 2022.

Section 6. Recommendations and Conclusion

6.1 Sanitary Survey Recommendations

The recommendations outlined in this section were developed to prevent contaminants from entering watershed surface waters and to enhance watershed monitoring for potential sources of contamination. These recommendations aim to maintain the health of the watershed by proactive monitoring, education, and containment strategies.

6.1.1 Operational Data

The District has very limited operational data for the filter systems on SR 3 and SR 4, as they have been operated very little since installation. It may be worth running once a quarter to collect data on the efficacy of the treatment process.

The WRF has not been operated since installation. If the District can obtain proper permitting, it would be beneficial to collect water quality data on the source water, treated recycled water, and RO concentrate.

6.1.2 Continued Watershed Monitoring

While many of the potential sources of contaminants have not significantly affected the District's water supplies, it is important to monitor, because the risk of contamination is still present. Ongoing monitoring will ensure that any spills are detected and mitigated as early as possible. Continued partnerships with CCAMP and the Monterey Bay Sanctuary Citizen Watershed Monitoring Network are recommended.

6.1.3 Continued Education

Public outreach and education efforts have previously been effective at reducing contamination. Continued education in the form of informational signage and public events such as beach cleanup are recommended. Connect with local environmental organizations that aim to protect the District's watersheds such as Greenspace, Friends of Fiscalini Ranch Preserve, and the Cambria Forest Committee.

6.2 Conclusion

Since the last WSS in 2015, there have not been significant changes to the San Simeon Creek or Santa Rosa Creek Watersheds. Both watersheds remain largely undeveloped, low-population areas with agriculture as the most significant land use. Industrial and commercial activities in the watershed are minimal. The potential contaminant sources have not changed significantly since the last WSS and have not posed a significant threat or impacted the quality of the District's water supply sources in that time period. Before the previous WSS the Chevron Station #9-0919 MTBE plume which emerged in 1993, and impacted water quality at SR1 and SR3, represented a threat to the District's drinking water supply. However, the site underwent multiple remediations, and the contamination case was determined to be closed with no further action needed in 2018.

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Section 8. Drinking Water Source Assessment and Protection (DSWAP) Program Forms

The Drinking Water Source Assessment and Protection (DWSAP) forms in the appendices of this section were completed in 2015 during the previous WSS Update. The California State Water Resources Control Board (SWRCB) recommends updating these forms when a new groundwater source is created or has been rehabilitated, if there are significant changes to the surrounding area, or if there has been modifications to the sources that would change the possible contaminating activities. Since there has not been any significant changes to the area or sources since the completion of these forms, the original forms completed in 2015 are attached. A minor change is noted in red on one of the forms, as the MTBE plume identified in Appendix D in 2015 has since been remediated and the case has closed.

Drinking Water Source Assessment and Protection (DWSAP) Forms:

Appendix A	Drinking Water Source Location
Appendix B	Delineation of Surface Water Protection Zones
Appendix C	Physical Barrier Effectiveness Checklist
Appendix D	Possible Contaminating Activities (PCA) Inventory
Appendix E	Vulnerability Analysis