

Section 1: Introduction

This section provides a brief description of the relevant background information pertaining to the Cambria Community Services District's efforts to complete a comprehensive water master plan as well as its existing water supply and need for an evaluation of alternative water sources. The objectives, scope of services, conduct of the study, and organization of this study are also summarized.

1.1 Water Master Planning Background

CCSD began its current Water Master Plan Update with the solicitation of engineering proposals in 1998. Subsequent fee estimates for the comprehensive planning proposed, however, were deemed to be more than the District could afford at that time. In addition, an MtBE contamination plume was discovered soon after the receipt of proposals, causing CCSD to commit its limited resources to an emergency well and wellhead treatment plant project. As a result, CCSD has pursued the phased Water Master Planning update process that is summarized in Table 1-1. The purpose of this report is to complete Task 4, the Water Resources Plan, of the phased water master planning approach. In addition to this report, Kennedy/Jenks Consultants is completing two companion Task 3 reports on the potable water distribution system and a proposed recycled water distribution system. For the reader's convenience, the findings of the Task 3 recycled water report, as they relate to long-term water supply, are also summarized within this Task 4 report.

**TABLE 1-1
SUMMARY OF DISTRICT WATER MASTER PLANNING TASKS**

Task No.	Task	Description	Status
1	Land Use & Build-out Analysis	Analysis of future water needs based on detailed mapping of water facilities, lots, land use, & geographic features.	Mapping completed and being used to support Task 3.
2	Water Supply & Availability Analysis	Assessed existing groundwater supplies and impact of future water commitments. Developed water supply & demand model.	"Baseline Water Supply Analysis" Report completed by Kennedy/Jenks Consultants on December 8, 2000.
3	Water & Recycled Distribution Systems	Detailed computer modeling of water distribution system to analyze fire-fighting needs. Conceptual recycled water distribution system for outdoor irrigation.	Updates to draft reports on the potable water distribution system as well as a proposed recycled water system are currently being completed.
4	Water Resources Plan	Analysis of long-term supply options, including desalination, Nacimiento reservoir water, dams, and related alternatives.	Subject of this report.

Task No.	Task	Description	Status
5	Financing Study	Analysis and recommendations for financing of long-term supply options.	Not started to date.
6	Habitat Conservation Plan	Habitat Conservation Planning (HCP) was envisioned as part of the original request for proposals. HCPs are required if a project could result in the "incidental take" of a threatened species.	This is a placeholder task and depends upon the long-term supply project pursued by the CCSD.

In addition to the above tasks, the District is also completing a program Environmental Impact Report (EIR) on the water master planning process. The program EIR will include an analysis of potential growth inducing impacts and other CEQA requirements that are not a part of this Task 4 report.

1.2 Water Supply Background

The community of Cambria has approximately 6,400 permanent residents and receives over 20,000 visitors per year. To meet this water demand, CCSD relies solely upon wells that draw from local groundwater aquifers along the San Simeon and Santa Rosa Creeks. These aquifers are generally narrow and thin, and exhibit the characteristics of subterranean streams.

CCSD's water rights to the two aquifers are subject to the regulatory authority of the State Water Resources Control Board (SWRCB), and to a certain extent, conditions imposed under development permits issued by the CCC. Most recently, CCSD has investigated the process for adjudicating the San Simeon groundwater basin. If pursued, the adjudication process would further define the water rights of users along the basin and should ultimately establish a process for assuring long-term protection of CCSD's existing water rights, as well as those currently being used by riparian consumers. To date, neither of the two aquifers has been adjudicated.

The San Simeon and Santa Rosa aquifers are relatively shallow and porous, with the groundwater levels typically recharged every year during the rainy season. With CCSD pumping, groundwater levels generally exhibit a characteristic pattern of consistent high levels during the wet season, steady decline during the dry season, and rapid rise when the wet season resumes. Previous investigations have concluded that the beginning date and duration of stream-flow in the creeks are the most important factors in aquifer recharge. Generally, pumping during the wet season does not appear to affect groundwater levels. Therefore, water supply availability in the dry season condition is currently the most important water supply issue for CCSD.

During periods of drought, there is insufficient creek flow to restore the groundwater levels in the aquifer and the groundwater level is drawn down closer to sea level to provide the community with water. The influx of tourists and resultant increase in water demand during the dry season puts a strain on CCSD's current water supply. During an extended period of drought, CCSD's water supply could be exhausted. For example, during the drought years of the 1980s, the groundwater levels in CCSD's aquifer dropped to 1.5 ft above sea level.

To minimize potable groundwater losses at the aquifer and ocean interface, CCSD percolates treated wastewater effluent into the San Simeon Creek aquifer downstream from its production wells. This practice also helps to prevent seawater intrusion into the drinking water aquifer. If the groundwater level drops too far, treated effluent and seawater could migrate toward the water supply wells, deteriorating the quality of the water and potentially rendering the freshwater non-potable. As part of the conditions imposed by the Regional Water Quality Control Board (RWQCB) Waste Discharge Order for CCSD a positive differential must be maintained between the up-gradient groundwater levels at its production wells and the down-gradient percolation fields. During parts of the summer dry season, CCSD may periodically pump groundwater from its percolation fields in order to maintain this differential.

Groundwater can be withdrawn from either the San Simeon or Santa Rosa Creek wells. However, the San Simeon groundwater is of better quality than the Santa Rosa groundwater due to lower hardness, total dissolved solids (TDS), and manganese concentrations. Additionally, the Santa Rosa Creek is more readily recognized as a steelhead habitat stream due to its longer reach of year-round fish habitat, about 12 miles for Santa Rosa, versus 1 mile for San Simeon.¹

Appendix D contains a record of CCSD's monthly well production from 1966 through 2002. On March 23, 1979, the CCSD shifted its main production from the Santa Rosa Creek aquifer to the then recently constructed, San Simeon Creek well field.² CCSD's older Santa Rosa wells have required iron and manganese removal using a proprietary "Filtronics" treatment system. Following the adoption of the Surface Water Treatment Rule (SWTR), CCSD had periods when its use of Santa Rosa Wells SR-1 and SR-3 was minimal due to the wells being within 150 ft of the creek and thus subject to the SWTR. To prevent exceeding requirements of the SWTR, CCSD developed an operating strategy to only pump from Santa Rosa Creek when the surface water levels were further than 150 ft away from the wells and thus no longer subject to the SWTR. To allow operation when the creeks were flowing within 150 ft of the Santa Rosa wells, modification of the existing "Filtronics" treatment plant was required. These modifications included the addition of a coagulant feed system ahead of the filter, as well as on-line turbidity measurements and remote alarms. In 1999, CCSD completed the necessary modifications. However, testing and startup of the plant modifications were halted after MtBE was discovered immediately up gradient from wells SR-1 and SR-3.

MtBE is a known organic contaminant from gasoline and travels faster from its point of introduction when compared to other contaminants present in gasoline. Based upon recommendations of the RWQCB, CCSD shut down its wells SR-1 and SR-3, in order to prevent further migration of the MtBE into the Santa Rosa aquifer, and to prevent such pumping from hampering the MtBE cleanup effort.

In response to the shutdown of its Santa Rosa well field due to MtBE contamination, CCSD completed two emergency supply projects in 2001. The most significant was a new well SR-4 and treatment facility behind the Coast Union High School practice fields. Well SR-4 is further up gradient from the MtBE, and is located within a different region of the Santa Rosa aquifer than wells SR-1 and SR-3. It is also close to the high school's irrigation well, and closer to certain agricultural wells. To date, CCSD is still developing operational experience with well SR-4, and adjusting its period of operation over the summer months to avoid pumping while the high school

¹ D.W. Alley & Associates.

² "Final Environmental Impact Report for Santa Rosa Creek Water Rights Project," McClelland Engineers, November 1987.

well is running. During 2002, the operations staff established a practice of monitoring creek levels and flows during the driest times of the year. If the creek was flowing during the summer months, operators shut well SR-4 off if they suspected upstream riparian pumping, in conjunction with Well SR4 pumping, would either stop creek flow or lower creek levels. As a result, only 17.2 AF were pumped by SR-4 from July 1 through October 31, 2002. For the period of May 1 through October 31, 2002, a total of 74.4 AF were produced by well SR-4. For this same period in 2003, the total was 71.9 AF.

In addition to the Well SR-4 facilities, CCSD also added two, twenty thousand pound granular activated carbon (GAC) filters to existing wells SR-1 and SR-3. The GAC units were leased and in place, should there be a major conflagration in the area requiring use of wells SR-1 and SR-3 over the period of several days. The GAC units were added to allow for removal of MtBE in the event of such emergency pumping, and the consequential movement of the MtBE plume into the pumps. CCSD has since had the GAC units removed, and is now reliant on well SR-4 and the three San Simeon wells for its entire supply needs.

Barring concerns over MtBE, and the potential cumulative effect of riparian and municipal SR-4 pumping, CCSD's two supplies could be balanced to optimize production between the two aquifers. Such balancing between the aquifers can occur during winter, however, management of the two aquifers during the summer months is the most critical period. The use and availability of the Santa Rosa aquifer is limited during the summer months, as evidenced by the past practice of shutting the well off in order to avoid potential habitat impacts. Should CCSD use well SR-4 such that it created an incidental taking of listed species during its summer operation, CCSD would first need to complete an acceptable Habitat Conservation Plan that identifies means for offsetting any loss of threatened species.

1.3 Objectives

The main objective of this report is to identify one, or a combination of, feasible long-term supply alternatives that will meet with CCSD's objectives for water quantity, quality and reliability. During November 2001, the CCSD Board declared a water shortage emergency. Since then, the area has been under a new connection moratorium and has had to rely primarily on an aggressive water conservation program and rate setting as a means for controlling demand. CCSD authorized Kennedy/Jenks Consultants to conduct an assessment of various long-term water supply alternatives in a contract dated 27 March 2002.

1.4 Scope of Services

In accordance with the authorized contract, the scope of services for the Assessment of Long-Term Water Supply Alternatives consists of the following:

1. Review reference materials, including water rights and related permits, past reports and proposals.
2. Meet and confer with key stakeholders.
3. Identify objective criteria to be used for comparing options.
4. Assess information from prior Water Master Plan Tasks 1 through 3.

5. Review and assess basin management planning needs.
6. Identify future water requirements.
7. Identify water quality improvements.
8. Identify recycled water treatment requirements.
9. Perform water conservation assessment.
10. Develop supply alternatives.
11. Screen alternatives.
12. Identify and recommend requirements for subsequent environmental assessments and habitat conservation planning.
13. Provide information for the revision of the Urban Water Management Plan.
14. Prepare summary report.

1.5 Conduct of Study

The Assessment of Water Supply Alternatives was conducted using available data from various sources, including CCSD. Additional information was gathered through personal contacts with CCSD and other relevant cities, counties, and agencies. Potential water source alternatives were based on previous studies. Evaluation of the potential alternatives was conducted using a weighted numerical method rating each alternative with respect to supply, water quality, reliability, environmental issues and cost. Treatment technologies and cost estimates were prepared using standard industry procedures and best professional judgment.

1.6 Report Organization

- Section 1: Introduction, provides background information, introduces the evaluation, and identifies the structure of the report.
- Section 2: Water Supply Requirements, describes both groundwater basins and their associated present and projected demands and present and projected supply capabilities.
- Section 3: Water Quality Requirements, describes existing and expected regulatory requirements that may affect CCSD's current mode of operation. Development of a centralized water softening system is also provided.
- Section 4: Potential Water Supply Alternatives, provides a preliminary discussion of a wide range of potential alternatives for a new water supply for CCSD. The nature of the source, quantity of water available, cost, complexity of required agreements, and other basic features of the source are presented.

- Section 5: Seasonal Storage and Conjunctive Use Alternatives, provides a preliminary discussion and screening of the seasonal storage alternatives and potential conjunctive use strategies.
- Section 6: Overview of Relevant Treatment Technologies, explains the potential treatment methods that may be used for several of the alternatives.
- Section 7: Evaluation Criteria for Water Supply Alternatives, provides a description of the criteria used in the numerical matrix to evaluate the remaining alternatives, including the ranking factors for each criterion.
- Section 8: Detailed Evaluation of Selected Alternatives, provides more specific evaluation of the alternatives identified in Sections 4 and 5. For each alternative, the water supply capabilities, water quality, required infrastructure, reliability, required agreements/institutional agreements, environmental issues, permitting/CEQA, costs/funding, and schedule are discussed.
- Section 9: Recommended Plan, recommends a long-term water supply strategy. The elements of the plan, estimated costs, and recommended implementation activities are described.