

Our First 100 Years

A Comprehensive History of the Alameda County Water District

by Paul A. Piraino



ACWD
ALAMEDA COUNTY WATER DISTRICT

Our First 100 Years

A Comprehensive History of the
Alameda County Water District

by Paul A. Piraino



Editor: Penny Hill
Designer: Curtis Leipold
Project Coordinator: Water Education Foundation
Printing: Paul Baker Printing

ACWD Project Manager: Frank Jahn
Publisher: Alameda County Water District

© Copyright 2015 Alameda County Water District

All rights reserved. No portion of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, without permission in writing from the Alameda County Water District.

ISBN: 978-0-692-34891-8

Printed in the United States of America

Copies of this book may be obtained from the
Alameda County Water District
43885 S. Grimmer Blvd., Fremont, CA 94538
(510) 668-4200

Foreword

by Walter L. Wadlow

ACWD General Manager

2009-2014



Centennials are milestones – opportunities to reflect on where we’ve come from and where we are going.

In the case of Alameda County Water District’s centennial, it is that and more. As is the case throughout California and the western United States, our ability to live, work, attend school, and play depends on a reliable supply of high-quality water at a reasonable price. In the arid West, this doesn’t “just happen.” On the contrary, the water supply for the cities of Fremont, Newark, and Union City is a result of 100 years of foresight and investment by local residents, businesses, public agencies, and leaders. It’s their work that helps to ensure the water we sometimes take for granted.

Alameda County Water District’s ability to reliably provide supplies of high-quality water has played, and will continue to play, a foundational role in the daily lives of all who live and work in the Tri-Cities. The District was formed in 1914 amidst an intense struggle for control of local water sources. As this book describes, we had to compete with other entities for water to support southern Alameda County agriculture. After World War II, the District’s challenge became fulfilling the water needs created by our area’s rapid residential, commercial, and industrial development. This struggle for water is key to understanding who we are today as a community.

The present-day challenges of providing water are even more complex. As this book goes to print, California is grappling with a continuing drought of historic proportions. As the state’s population continues to grow, and as the negative impacts of climate change are increasingly felt, we will be faced with difficult decisions about ensuring reliable water for people and the environment.

It is critical that community members increase their awareness and understanding of water issues so that the Tri-Cities can sustainably grow for our children and grandchildren. At the District, we believe that a shared understanding of our area’s water history provides the basis for selecting local leaders who can successfully confront these challenges.

We celebrate our diverse community, which includes families with a long history in the Tri-City area as well as those who have come here from other parts of the country and from around the world. It is my hope – and the District’s – that this book will contribute to a shared sense of history and understanding of water’s critical role in the development of our community.

It is in this spirit that the Alameda County Water District offers a glimpse into *Our First 100 Years*.



The Alameda County Water District would like to thank the following sponsors for making this chronicle of our history possible.

Above All Plumbing, Inc.

AdMail Express, Inc.

Bank of the West BNP Paribas Group

Bartel Associates, LLC

Blocka Construction, Inc.

Carollo Engineers, Inc.

CDM Smith, Inc.

City of Fremont

City of Newark

City of Union City

Classic Graphics Body Shop

Hanson Bridgett LLP

Martin Koller, Bernice Beccaria & family

McBain Associates

Pump Repair Service Co.

Raftelis Financial Consultants, Inc.

RMC Water and Environment

The Duerig Family

West Bay Builders, Inc.

Bartle Wells Associates	Anntoinette Lyons
Bay Area Water Supply and Conservation Agency	Bay Central Printing, Inc.
Bay Area Water Works Association	Beth Gentry
Burke Industries: Liners & Floating Covers	Carmen Group, Inc.
CH2M HILL	Charles M. Doss Design Services
Command Security Corporation	CSols, Inc.
Dale Hardware	Douglas and Cynthia Chun
Green Valley Landscape	Ed Stevenson
Harn R/O Systems, Inc.	Eric and Ann Cartwright
Hill Brothers Chemical Company	Fremont Minuteman Press
ICMA RC	Groundwater Resources Association of California
insight software.com, inc	InfoSend, Inc.
Intake Screens, Inc.	Jerry Brown, Contra Costa Water District
Judy C. Huang	Linnea L. Hoover, QA/QC Officer, ACWD
Kent Botti DBA Lone Tree Trucking, Inc.	Long-time Fremont resident
Leonard Ash	McIvor's Hardware
Maddaus Water Management, Inc.	Mike Halliwell
Metrohm USA	Mun J. Mar
MPC Containment	Overland, Pacific and Cutler
PFM Asset Management LLC	Peter Zhou & Yanyang Xu
R&D Hein Trucking LLC	Philip Johnsen
Reliasys	Rotary Club of Fremont
Robert and Lauren Shaver	Scott Freeman (Black & Veatch)
Smith & Sons Electric, Inc.	Semitropic Water Storage District
State Water Contractors	Sentry Alarm Systems
Sylvia Santos Ronco	SST Benefits Consulting
The Covello Group	Steve and Arlette Peterson
Trench Plate Rental Company	Steven D. Inn
Walt's Mission Pass Towing & Storage	The Arribas-Hidas Family
Walt Wadlow and Alison Russell	The Groundwater Foundation
Weibel Family Winery	Thomas Niesar
	Tri-City Voice
	WaterSmart Software
	WQTS, Inc.
	ZunZun

Table of Contents

PART I: LOCAL CONTROL

Chapter 1: 1850 to 1913: The Problem Develops • Page 1

Washington Township residents organize to fight for local control of their water supplies and to secure their regional destiny

Chapter 2: 1914 to 1930: In the Courts • Page 35

Establishing rightful ownership of Washington Township's water through adjudication, legislation, negotiation, and deals

PART II: EXPANSION

Chapter 3: 1930 to 1950: Distribution and Drought • Page 61

The District becomes a water distributor, copes with prolonged drought and economic downturn, and begins the search for new water supplies

Chapter 4: 1950 to 1962: Growing Pains • Page 93

Cities incorporate, growth accelerates, and the District grapples with how to meet future demands and finance growth

Chapter 5: 1962 to 1977: Conflict and Resolution • Page 131

As ACWD's role as a regional urban water agency evolves, conflicts develop with local, regional, and statewide interests as the District secures new water sources and strives for better water quality and reliability for its customers

PART III: DEALING WITH UNCERTAINTY

Chapter 6: 1978 to 1992: Initiatives and Technology • Page 179

Propositions 13, 8, and 9 bring financial and supply reliability challenges, while the District increasingly turns to new technologies to meet customer expectations

Chapter 7: 1992 to 1996: Seeking Greater Certainty • Page 223

The District turns to integrated resources planning to chart a course for the future while responding to immediate threats to local water supplies and to its existence as a special purpose district

Chapter 8: 1996 to 2009: Taking Action • Page 251

The District implements integrated resources planning, develops plans to replace aging infrastructure and reduce the impact of earthquakes on water delivery, realizes the vision of joint use of water and recreational facilities, and is recognized for its engineering excellence and financial management abilities

Chapter 9: 2009 to 2014: Looking Ahead • Page 305

The District increases the reliability and quality of its supplies through cooperation and local, regional, and statewide engagement; implements water main replacement and seismic improvement programs; and copes with a historic statewide drought

AFTERWORD • Page 327

ACKNOWLEDGEMENTS • Page 328

PHOTO CREDITS • Page 329

AUTHOR BIO • Page 331



R 4 W
R 3 W
Base Line
R 2 W
R 1 W

**MAP OF THE
COUNTY OF
ALAMEDA**

SCALE

TWO MILES TO AN INCH.

DRAWN BY
M.B. HAYNES, C.E.

PUBLISHED BY
**THOMPSON & WEST,
OAKLAND, CAL.**

CONTRA COSTA

FRANCISCO BAY

E D E N

WASHINGTON

RANCHO SAN RAMON

RANCHO SAN ANTONIO
(A.M. PERALTA)

SOBRANTE RANCHO

RANCHO SAN ANTONIO
(YGNACIO PERALTA)

RANCHO SAN LORENZO

RANCHO SAN LEANDRO

RANCHO SAN LORENZO
SOTO

RANCHO ARROYO DE

LA ALAMEDA

RANCHO POTRERO
DE LOS CERRITOS

EX MISSION SAN JOSE

RANCHO DEL AGUA
CALIENTE

DIXONS LANDING

Chapter 1 • 1850 to 1913: The Problem Develops

In 1910, a local educator began motivating the citizenry of Washington Township in Southern Alameda County to wrest their area's vital water resources from the grasp of much larger and more politically connected cities and private water companies. In many ways, it is a story that is distinctly American, in which the "little guy" ultimately triumphs over more powerful vested interests by grit, determination, and political savvy.

The result of these efforts was the creation of Alameda County Water District (ACWD). But there was no guarantee of this outcome when, on September 9, 1910, a provocative editorial by Christian Runckel appeared in pages of *The Washington Press* warning readers of "The Spring Valley Menace":

"...the Spring Valley Water Co. has or is about to settle ALL disputes as to their rights and titles to water rights in Washington as well as Pleasanton Township preparatory to selling out to San Francisco. The situation that the "Press" has feared for the past three years has come to pass. It is here right now. Money is a tempting thing and removes most difficulties. There are other moves yet in contemplation. Every one of them is a distinct menace to the future prosperity of this township. The time has come now for

*"There is Yet a Chance
to Save the Little We
Have Left."*

– CHRISTIAN RUNCKEL, 1910

Eight Villages – One Township

Niles, Newark, Centerville, Mission San Jose, Warm Springs, Irvington, Decoto and Alvarado

Washington Township was the second largest of the six original township areas created when Alameda County was formed in 1853. The Township was the oldest settlement in the county, dating back to 1797 when Spain established its fourteenth California mission: Mission San Jose. The township was also the first to receive a large number of settlers, and it was Alameda County's first county seat until it was moved northward in 1857, first to San Leandro and then to Oakland.

The township's boundaries were defined by the County; it did not own property or collect taxes, and had very limited governmental functions. Townships in California primarily served as election districts for justices of the peace and constables. Early on Washington Township formed school districts to provide for the education of the area's children, and fire commissions to form volunteer fire departments, but there was no organized municipal government in the area. Alameda County served as the primary governmental unit that provided whatever minimal services existed at the time.¹⁰

Over the course of the latter half of the nineteenth century, the growing urban areas of Oakland, Berkeley, San Leandro, and Hayward soon surpassed the predominately rural population of Washington Township. By 1914, Washington Township had a population of around 8,000 residents, or just slightly over 3 percent of Alameda County's population of nearly a quarter million.

the people of Washington Township to organize to protect their rights. The time has come to give notice to the Spring Valley Water Co. and its prospective purchaser, the City of San Francisco, as well as the Peoples Water Co. and the Bay Cities Water Co. that ANY FURTHER ATTEMPT TO DRAIN THE WATER SUPPLY OF WASHINGTON TOWNSHIP WILL BE RESISTED IN THE COURTS. This is a conservation question that ought to appeal to every man, woman and child in Washington Township. THERE IS YET A CHANCE TO SAVE THE LITTLE WE HAVE LEFT. The time for action has arrived. If we can stave off further despoliation until San Francisco brings in the water from the Sierras we will be safe.”¹

Local school principal Christian Runckel became editor of *The Press* in 1906 and transformed it into a vehicle to advocate for the interests of the local farmers and other water users who relied on pumping groundwater from the aquifers of the Niles Cone Groundwater Basin, which underlie the Washington Township area. The aquifers were annually replenished by the storm waters flowing out of a 630-square-mile watershed into Alameda Creek, which meandered through the Township on its way to San Francisco Bay.

Abundant water and fertile soil made Washington Township a prosperous agricultural region. The township was the source of produce and grains for miners during the Gold Rush and later for residents of San Francisco and other Bay Area cities. In this photo from the late 1800s, a family poses with a team of two dozen horses hitched to a combine.

The main focus of Runckel’s concern, the Spring Valley Water Company, had been supplying water to residents of San Francisco since the mid-nineteenth century. When San Francisco’s demands for water continued to grow, Spring Valley’s chief engineer Hermann Schussler began to prospect Alameda County for additional sources. He located groundwater supplies in Pleasanton and Sunol and purchased a prime reservoir site on Calaveras Creek, a tributary to Alameda Creek, in 1875.²



In 1887, with less than one year's supply remaining in the company's depleted reservoirs, Spring Valley began diverting water from Alameda Creek. Using a small diversion dam at Niles in Washington Township, the company transported the water a distance of 22 miles under San Francisco Bay via a pair of pipelines to a pumping station in Belmont. The Alameda Creek waters joined the 44-inch Crystal Springs main at Burlingame and flowed to San Franciscans by the summer of 1888, just in time to alleviate the worst effects of a drought crisis.³

In 1888 the company also began purchasing riparian water rights from farmers who owned land on Alameda Creek and its tributaries, including Washington Township. The sale of these water rights was by no means voluntary, since Spring Valley could hold the threat of eminent domain over the farmers' heads, and a number of attempts to litigate proved expensive and ultimately unsuccessful.⁴ According to Joseph Shinn, a local farmer whose family farmed lands adjoining Alameda Creek, "There was not one of the land owners who wished to sell riparian rights. Most of us were in no shape financially to fight a big corporation like the S.V. Co. [sic]. I know we had to borrow money for the fight and got little out of it in the end."⁵

Another series of dry years beginning in 1898 prompted Schussler to propose a further expansion of San Francisco's water supply from the waters of Alameda Creek. These waters percolated through the gravel-filled Sunol Valley before flowing through the narrow valley entrance to Niles Canyon. Schussler believed that a significant amount of water could be recovered from the gravel beds and pumped for customer use. Despite the skepticism of critics, in 1900 he built a low concrete dam in Niles Canyon at Sunol to impound the subterranean water flow and saturate the gravels. He then sunk a concrete tunnel, or filter gallery, deep into the gravel beds and collected percolating water through a series of pipes and screens. Schussler's theory proved correct, and the Sunol filter beds were soon yielding up to five million gallons per day. The addition of one hundred artesian wells sunk into the gravel basins near Pleasanton in the neighboring Livermore Valley contributed even more water. By 1902, Spring Valley's 2,700 acre Alameda County watershed provided ten million gallons of water daily, or nearly half of San Francisco's supply.⁶

By the turn of the century, Spring Valley had spent approximately \$5 million on additional water rights and storage locations to further secure its monopoly position, affirming to San Francisco officials that it could meet the city's increasing water demands without turning to other sources.⁷ The company also anticipated that these newly acquired water rights and reservoir sites would inflate the cost to San Francisco should the city determine to purchase the waterworks. In 1874 San Francisco was given the power to accomplish this when the state Legislature passed an act that gave



In 1888 Spring Valley Water Company dammed San Mateo Creek to provide water for San Francisco. The structure was one of the first concrete gravity dams in the west. This 1895 photo shows the enormity of the structure and the lower Crystal Springs Reservoir behind it.



Crews and horse-drawn equipment create the waterworks of Spring Valley Water Company in Alameda County, 1898.

it the legal right to either purchase the waterworks or establish a source of its own.⁸ Efforts by the City to purchase Spring Valley faltered at that time because of significant disagreement over the waterworks' value. Negotiations with the company over price would continue off and on for another twenty-five years, with no positive results.

San Francisco's attempts to develop a municipally-owned water system gained new momentum in 1900 as part of the nationwide trend toward government reform known as Progressivism. The Progressive movement in California ushered in an era of state and municipal reform that included the establishment of the initiative, recall, and referendum to give California voters a greater voice in government policy, as well as a belief that government would be the most efficient and cost-effective provider of utility services. Accordingly, at San Francisco's request, the state Legislature approved a new city charter that **required**, not just permitted, a municipal waterworks. According to the Progressive thinking at the time, city ownership would free residents from private water companies' perceived corrupt practices and poor water service.⁹

Armed with the mandate to create a city-owned water system, San Francisco's officials continued to negotiate with Spring Valley; however, the city's officials by this time had also begun to doubt that Spring Valley's

San Francisco Origins of Alameda County Water Development

The proper start for a history of water development in Alameda County actually begins in San Francisco. Not long after Juan Bautista de Anza had selected the site of the Presidio and the Franciscan friars had dedicated Mission Dolores, the village of Yerba Buena began to grow at the tip of the San Francisco peninsula. At first the village obtained all the water it needed from springs, creeks or wells. In 1849, Juan Miguel Aguirre became the first recorded water supply entrepreneur in the city as he peddled water from his barrel-laden donkey for a dollar a bucket during periods of scarcity.¹¹

By 1851, after some frequent and disastrous fires and a drastic increase in population, it was clear that a better method of obtaining water was necessary. A few hopefuls, looking for both a better water system and profits, formed the Mountain Lake Water Company to tap the waters in Mountain Lake and Lobos Creek on the San Mateo peninsula. Their hope, however, was greater than their capital, and while they were able to obtain a franchise from the city, they were unable to start construction.

Soon thereafter, A.W. Von Schmidt, John Beasley, and others formed the San Francisco Water Works. By 1858, the company had built a diversion dam on Lobos Creek and over five miles of redwood aqueduct to carry the water to reservoirs in the city, had successfully countered lawsuits brought by the Mountain Lake Water Company, and had begun selling water to San Franciscans. Von Schmidt and his partners ultimately acquired the Spring Valley Water Works, which soon became the exclusive supplier of water to San Francisco, and which was reorganized as the Spring Valley Water Company in 1903.¹²

One of the first actions Spring Valley took under Von Schmidt's oversight was to hire Hermann Schussler as the company's chief engineer. Schussler immediately set out to exploit the surface water capability of San Mateo County, building San Andreas Dam and Crystal Springs Reservoir.

By 1902, Spring Valley's 2,700 acre Alameda County watershed provided ten million gallons of water daily, or nearly half of San Francisco's supply.

Before the gold rush, San Francisco's population was approximately 850 people. By 1860, shown in this photo, San Francisco's population had grown to nearly 57,000. And by 1910, the population topped 400,000. The city turned to Alameda County to provide water for its burgeoning population.



system could meet the city's growing water supply needs. As a result, San Francisco officials initiated their own search for a new water supply. Since Spring Valley and other private interests held the water rights to most of the local sources around San Francisco Bay, the city turned to the Sierra Nevada. Eventually choosing the Tuolumne River, the city filed for water rights there in 1901. The Tuolumne drained a large portion of the Sierra Nevada, including Hetch Hetchy Valley, which the city's engineers determined to be an ideal reservoir site.

Aside from the potential water supply benefits, the Tuolumne River and Hetch Hetchy Valley also opened up the prospect of generating hydroelectric energy to meet the growing demand for electricity as electric lights and appliances increased in availability and use. The electric power could be generated as the water flowed by gravity down to San Francisco. Income from power sales could then be used to help offset the cost of building the Hetch Hetchy Dam and the aqueduct system needed to deliver the water to San Francisco.¹⁸

Because Hetch Hetchy Valley was on federal land in Yosemite National Park, the city could also avoid potential conflicts and protracted negotiations with individual landowners; however, it would also require that the city obtain the approval of the Secretary of the Interior, who at that time had direct oversight of national parks, to construct the reservoir and related facilities. When San Francisco applied to Interior Secretary Ethan Hitchcock in 1902 for permission to build the dam at Hetch Hetchy, the request was quickly mired down in controversy and intrigues among city officials, environmental defenders of Hetch Hetchy and private water interests. It would not be until 1913 that the dam at Hetch Hetchy was finally sanctioned by Congress with the approval of the Raker Act.¹⁹

The residents of Washington Township supported the efforts of San Francisco's officials to reach an agreement with Spring Valley to acquire

its water system, believing that once Hetch Hetchy Dam was completed, the city would return Alameda Creek's water rights back to local control. While supporting Hetch Hetchy, Township residents remained skeptical about San Francisco's support for Spring Valley's proposed dam on Calaveras Creek, a tributary to Alameda Creek, which it had acquired in the 1870s. It was San Francisco's hope that the Calaveras Dam could ultimately be incorporated into the proposed Hetch Hetchy aqueduct system. Although Spring Valley temporarily set aside its plans for the Calaveras



The editor of *The Washington Press*, Christian Runckel, urged the citizens of Washington Township to organize and fight for their water.

Christian Runckel

Originally from Dutch Flats in Placer County, Christian Runckel had been a school principal and editor of the *Colfax Sentinel* before settling in Washington Township. He had twice run for Placer County Superintendent of Schools, and was the 1898 Democratic and Populist parties' "fusion" candidate for State Superintendent of Public Instruction. At that time, the *Western Journal of Education* described candidate Runckel as one "who openly and consistently fought the agents of oppression and greed," and as "a progressive and a strong and fearless advocate of the mining interests, [who] led the fight against the usurpation of mineral lands by the Southern Pacific."¹³

Moving to the Washington Township in the early 1900s, Runckel had been principal of Decoto School for around five years when he was handed the supervising principalship in Pleasanton by the county political machine – known (perhaps surprisingly, given Runckel's previous history) as the "Southern Pacific Gang."¹⁴

A few months later, he was given another political plum in the form of the editorship of the town newspapers in both Niles and Pleasanton, no doubt a welcome opportunity for a struggling schoolmaster. But this situation was soon to change. According to Runckel:

"As time proceeded, the promise to make money seemed to unravel itself to me. There were two big private water monopolies that had fastened themselves on the natural water supply of the rich farming section. . .they were both planning for greater control. . . .When this was finally revealed to me I decided I must do one of two things – renounce my political friends or get out of the newspaper business. I decided to fight for the agricultural redemption of the fertile farming section. . .so I went back to Decoto [School], where I could fight without losing my school position."¹⁵

According to W.D. (Will) Patterson, Runckel was "one of those rugged individualists that gave in to no one or to any influence. He stuck it out and doing so practically starved for a while."¹⁶

By the time he assumed editorship of *The Washington Press*, Christian Runckel was also very much in the mainstream of Progressive thinking, endorsing Republican Progressive candidate Robert LaFollette for President as early as 1911, and declaring in a 1909 editorial that *The Press* intended to "pursue an independent policy within the ranks of the Republican party."¹⁷



Christian Runckel

Dam after the 1906 San Francisco earthquake, the fact that it still owned a dam site on Calaveras Creek, and its continued pressure on farmers to give up their water rights in the Alameda Creek watershed, prompted Runckel to issue the September 9, 1910, editorial in *The Washington Press*.

Runckel's editorial also warned of threats posed by the People's Water Company and Bay Cities Water Company, both of whom were exploiting the Township's water supplies for their own gain and to the Township's detriment. People's Water Company, serving Oakland and other cities in northern Alameda County, was formed after the turn of the century by the merger of the Contra Costa Water Company and the Richmond Water Company. Contra Costa Water Company had acquired rights in 1891 to pump from wells in the Washington Township community of Alvarado, a source of supply that tapped directly into the aquifers of the Niles Cone.²⁰ This water was sent northward to Oakland and surrounding cities.



In the Aftermath of the 1906 Earthquake, Demand for Water Increased

The 1906 earthquake greatly affected water use throughout the Bay Area. Many earthquake refugees fled to Oakland, creating increased demand on that area's water supplies. San Francisco not only rebuilt swiftly, its population swelled. The earthquake after-effects and growth put pressure on Spring Valley Water Company, which supplied San Francisco, to repair broken pipes, lay new pipes for rebuilt and newly built areas, and provide more water. A good portion of that water came from Washington Township. By 1911, 22 million gallons per day were being exported out of Alameda Creek and the Alvarado wells for use in San Francisco and Oakland.



These diversions to communities to the north of the Township rapidly accelerated after 1906 when the East Bay’s population swelled as a result of the influx of refugees fleeing the San Francisco earthquake. The increased pumping from Alvarado caused groundwater levels in Niles Cone wells to drop, causing some apprehension among the farmers and prompting Runckel to include the People’s Water Company as one of the villains in his editorial.

Runckel was also worried about the potential threat posed by the Bay Cities Water Company, a competitor of People’s Water, which had also purchased some Alameda Creek water rights around the turn of the century. When Oakland began to consider the formation of a municipally owned water system in 1905, Bay Cities had unsuccessfully tried to sell these rights to the city, after having previously offered them to San Francisco (in 1900 and yet again in 1906).²¹ Even though Bay Cities Water’s claims to water rights on Alameda Creek were dubious at best, since Spring Valley also claimed this source, this fact did not stop the proposal from being placed on the ballot for Oakland voters to decide in December 1905. Concerned with the potential cost, Oakland voters narrowly defeated the proposed purchase.²² In spite of these failures, the company’s continued claims to ownership of these rights sufficiently concerned Runckel that he included them in his September 9 editorial.

There does not appear to have been any immediate groundswell of support from the Washington Township residents to join Runckel in fighting these threats to the area’s water supply. This may have been due to the fact that, during the years between 1900 and 1910, water supply and demand remained in balance, even with the pumping by People’s Water and the diversions by Spring Valley. In fact, according to W.D. Patterson, in the 1890s “the condition was one of too much water” in the lowlands of Washington Township near the Coyote Hills, and “it was a problem of getting rid of excess water” rather than having too little.²³

Runckel, however, was not easily daunted. His concerns about the export of water outside of the Township finally gained traction among area residents when, by 1911, farmers began to notice a further lowering of the water table in the Niles Cone. By that time, farmers had begun to move from crops that used less water (such as hay and grain) to vegetables, alfalfa, and

This 1909 panorama photograph shows how rapidly and extensively San Francisco rebuilt after the 1906 earthquake.



other water-intensive crops, which, including existing fruit orchards, had the effect of increasing the demand for irrigation.²⁴ Even as Washington Township water demands grew, 1911 was turning out to be a dry year, with annual rainfall in the area coming in at nearly 50 percent below the annual average rainfall for the Alameda Creek watershed.²⁵ By 1911 as well, the export demands by Spring Valley and Peoples' Water had increased to the point where a total of 22 million gallons per day (mgd) was being exported out of Washington Township (16 mgd in diversions by Spring Valley and 6 mgd in pumping by People's Water). In comparison, the amount of pumping for all uses, including irrigation, within the Township was estimated at 2 mgd, with exports comprising 90 percent of the total water use in the Township.²⁶

By the summer of 1911, Runckel was once again agitating in earnest about the threat to local water supplies. On August 4, Runckel laid out the position of the *Press* in a front page editorial entitled "Our Platform."

Runckel pointed out that the Spring Valley Water Company was diverting 16 million gallons of water each day from Alameda Creek's watershed to San Francisco and was "preparing to greatly increase this amount." He further observed that Peoples' Water was taking 6 million gallons daily to Oakland.

Having noted these dangers, the *Press* offered up a three-part platform. First, the newspaper called for water users in Oakland and other East Bay communities to obtain their water from the Sierra Nevada, just as San Francisco was seeking to do from Hetch Hetchy Valley. Second, the *Press* advocated that Alameda County acquire either by purchase or by condemnation all of the Alameda Creek water rights owned by the Spring Valley Water Company and that once San Francisco and the East Bay cities had secured their supplies from the Sierra

Nevada, those Alameda Creek rights "be restored to the people of Alameda County for their use." Finally, the paper urged (with considerable rhetorical hyperbole), "All patriotic citizens of our county use their utmost endeavors to hasten the realization of this purpose, so that a great food-producing section . . . may be preserved and the opportunities vastly increased for the opening up of a splendid suburban residence section, in what nature has ordained to be the most favored spot on earth."²⁷ This platform would run intermittently on the pages of the *Press* over the next few months.

The October 27, 1911, issue of the *Press* notified residents of the Township that a public meeting was scheduled in Centerville on October 30, "to consider the water supply question of the Township." The immediate objective of the meeting was to rally popular support behind San Francisco's appeal for Congressional authorization of the Hetch Hetchy dam project.



Centerville, shown on the Fourth of July of 1911, was in the midst of drought. It had not rained much in 1911 and the draw on area water continued to increase. By summer, when this photo was taken, 90 percent of the total water produced in Washington Township was exported to San Francisco and Oakland.

Christian Runckel called the meeting to order. J.H. Dockweiler, a consulting engineer for the City of San Francisco, reviewed the Hetch Hetchy project as well as a proposed trans-bay municipal water district proposal, which would have covered territory in both San Francisco and Alameda Counties. Legislation providing for the formation of a Bay Area-wide metropolitan water district had been passed by the California Legislature and signed by the Governor in 1909. Attorneys for both San Francisco and Oakland worked on the original legislation, and the measure was introduced by an Oakland representative in one house of the Legislature and by a representative from San Francisco in the other.²⁸

Dockweiler stated that the San Francisco proposal would permit all local communities to take advantage of the Sierra water supply by forming one large metropolitan water district encompassing all of the cities and towns on both sides of San Francisco Bay. Dockweiler proposed that, as part of this Bay Area-wide water district concept, Oakland should purchase the water rights held by Peoples' Water Company and San Francisco should buy those owned by the Spring Valley Water Company. He explained that this proposal would eliminate water service by private firms in both Oakland and San Francisco, replaced by a municipal district controlled by the voters to deliver needed water supplies.

Dockweiler further asserted that “unless these waters of the Sierras are brought into San Francisco more and more water will be taken from these

Spring Valley Water Company built a stone dam in Niles Canyon to impound the water and increase percolation.



Alameda Creek Watersheds and as a consequence the condition of the people of this region becomes worse and worse.”²⁹ Runckel subsequently offered two resolutions, unanimously adopted by those in attendance, with one calling for making every effort to bring Sierra Nevada water to the Bay Area as soon as possible, and the other asking the federal government to grant San Francisco’s bid to secure the Hetch Hetchy water supplies.

Runckel proclaimed in the next issue of the *Press* that the public mass meeting had been a “decided success.” Simultaneous with this announcement, however, yet another threat appeared to Washington Township’s local water supplies when it was reported that the Union Water Company, a subsidiary of the Bay Cities Water Company, had just acquired 2,200 acres of land around Newark and was sinking a well.³⁰

Shortly after the exposure of this potential threat came news that in December 1911, a bill had passed the California Legislature authorizing the formation of municipal water districts. Oakland’s Progressive mayor, Frank K. Mott, and Berkeley’s Socialist mayor, J. Stitt Wilson, had joined forces to advocate for the formation of a metropolitan water agency that would encompass much of Alameda County. Mott, Wilson, and the other Alameda County mayors who supported the regional approach found additional support when Marin County residents, concerned about high water rates and poor water service from private water companies, asked Assemblyman George Harlan of Sausalito to propose legislation that would establish the creation of municipal water districts in the state. The bill passed easily, and the Metropolitan Water District Act of 1911 was signed into law by Governor Hiram Johnson.³¹ Marin Municipal Water District would soon be chartered in 1912 as the first municipal water district in the state.

Despite the fact that, overall, 1913 had been a dry year, there was still flooding in Alameda Creek. Washington Township residents and Water Committee members understood that floods and drought were part of the normal weather cycle and were able to see a larger picture when planning for their future water district.



Runckel initially believed that the proposed statutes would facilitate the creation of a district covering the entirety of Alameda County. However, it soon became evident that the proposal was intended to cover only the northern Alameda County cities of Alameda, Oakland, Berkeley, Albany, Emeryville, Piedmont, and San Leandro. Runckel counseled caution, fearing domination of the Township by these larger communities should the Washington Township area be asked to join the proposed agency. Hoping that the future arrival of water from Hetch Hetchy would relieve the pressure on local supplies, he continued to press for a large water district covering both San Francisco and the East Bay, as originally described by J.H. Dockweiler at the October 30, 1911, mass meeting, editorializing that:

“The *Press* believes it to be for the best interests of Washington Township at least for the present to stay out of the proposed district should we be asked to enter. From the very nature of the situation, our township is seriously threatened at present by the development of Oakland’s water supply at Alvarado and by the prospective development of the supply at Newark. Both threaten to take away from this township our only supply left to us. If we voluntarily enter the proposed municipal district we are likely to lose what little chance we have to safeguard our interests. . . . If it comes to joining any water district our best interests will impel us to cast our lot so far as a water supply is concerned with San Francisco. The sooner Hetch Hetchy water is brought to the bay section, the sooner will relief come to us. Eventually both sides of the Bay will be merged into one district. Until that time comes, let us, as we are, stand for our rights. A few thousand people with right and justice on their side may even bring a big city to recognize their claims.”³²

In early April of 1912, the Associated Chambers of Commerce called for another public meeting of the citizens of Washington Township to consider the water question in the light of these additional threats. The meeting was held on May 28, 1912, with about eighty people in attendance. Local farmer and landowner J.C. Shinn moderated the meeting, explaining that its purpose was to “consider the water question and to give an opportunity to hear what the City of San Francisco is doing, and what plans are being made to get water for San Francisco.” Runckel was introduced first, stating that many people in the area “were considerably exercised over new developments in the township in the neighborhood of Newark, believing that there was a new danger threatening, and that this should be considered.”

Runckel further pointed out that the Spring Valley Water Company had recently purchased approximately five thousand acres in Pleasanton and another five thousand in the Livermore Valley – both of which were in the upper parts of the Alameda Creek watershed, adding that “some people ... see in these things the development of a new danger.” He further warned

that Oakland was developing plans to purchase Peoples’ Water Company and that it, together with Berkeley, might form a municipal water district. “Within a few years,” he cautioned, “it will be too late to do anything, for if our water is taken now without protest, when we awake to the needs of ourselves, the statute of limitations will have run on our rights, and we will be without redress.”³³

J.H. Dockweiler spoke next as a representative of San Francisco.

Dockweiler told the attendees that:

“Right now you have the condition of the privately owned Water Companies, taking water from a district that needs it and as a consequence the growth and development of this territory will be checked, if it has not already suffered.”³⁴

Dockweiler argued that it was critical for the landowners in the Township to show that their well levels had been adversely impacted by the waters taken from Alameda Creek by the “water companies,” and that this information could be used in a legal battle against them, to stop the taking of water from the Township’s area. Dockweiler concluded, “There is absolutely no other way out of this condition of things except to bring in the Hetch Hetchy waters and for the people of Oakland to purchase the Peoples’ Water Company and the people of San Francisco to purchase the Spring Valley plant.” He further warned that Spring Valley’s chief engineer had stated the company’s intention to build a reservoir on the San Antonio, the Calaveras,

The Problem of Busy Roads

Traffic was an issue in Washington Township, but not because of congestion – because of dust. Horses, carts, sulkies, wagons, and cattle would pulverize the dirt in the roads, and the dust spread everywhere. With all the animals on the roads, more than dust went airborne. Some residents planted thick hedge-

rows to block out the dirt. In the late 1800s, the solution was to regularly wet down the roads, much like construction crews do today. John Amaral had a 10-foot diameter cistern beside the creek that ran through his property (now Leal Ranch). He’d divert some water from the creek to the cistern, then pipe it down to three very large, elevated redwood tanks at the end of his property at Mission Blvd. Three water trucks would drive up under the tanks, fill up their barrels, and then spray down the busy roads to Irvington, Mission San Jose, and – as shown here – Niles.



and the Arroyo Valle, all tributaries to Alameda Creek. “So you see,” he said, “there won’t be much left when they get through.”³⁵

The meeting concluded much as it had in October 1911 with the adoption of a resolution supporting the federal government’s approval of the reservoir at Hetch Hetchy. More importantly, given the apparent severity of the water situation, the attendees voted to appoint a committee of five, eventually to be known as the Washington Township Water Committee. W.D. (Will) Patterson was made chairman. The other members were George Lowrie and G.F. Caldeira of Centerville and J.C. Shinn and W.H. Ford of Niles.

One of the committee’s first steps was to have owners measure the levels in their wells, the first in a long series of hydrologic surveys of the Niles Cone basin. The Water Committee subsequently recommended to the Associated Chambers of Commerce of Washington Township in June 1912 that official notices be forwarded to the Union Water Company, People’s Water Company, and the Spring Valley Water Company that any further attempts to divert additional supplies would be countered by legal action.³⁶

During the summer of 1912, while the residents of Washington Township were taking the first necessary steps to protect their region’s water supplies through the newly formed Water Committee, San Francisco was rapidly moving forward to develop Hetch Hetchy Valley. As part of this work, San Francisco needed to determine the extent to which existing local sources in the Bay Area could be further developed. This would require a series of engineering studies, for which San Francisco sought the assistance of consulting engineer John R. Freeman.

Freeman’s work was massive in scope, including an examination of the entire Hetch Hetchy proposal, as well as a review of the dependable yield from Spring Valley Water Company’s Bay Area watershed areas, including the Alameda Creek system. Freeman would use the services of several consulting engineers on this project, including Cyril Williams, Jr., who submitted a report on the Livermore Valley’s water resources.³⁷

A San Francisco-based consulting engineer, Williams was already a familiar figure in Washington Township, having also been used to supply well data and engineering support to the Patterson brothers in a lawsuit against Spring Valley.³⁸ In 1912, Williams was listed as a lecturer at the St. Ignatius College of Engineering in San Francisco, the predecessor to the University of San Francisco, where Michael O’Shaughnessy, the San Francisco City Engineer and chief architect of the Hetch Hetchy system, served as dean.³⁹ In 1909, Williams was also identified as the Assistant Engineer for the Spring Valley Water Company in a report to the San Francisco Board of

Supervisors on Spring Valley’s operating expenditures.⁴⁰ By 1912, Williams had apparently switched allegiances, and he completed several studies as a paid consultant to San Francisco with respect to the water yield of the proposed Hetch Hetchy system.⁴¹

The Washington Press called for San Francisco to go to the Sierra Nevada for their water so that “the water now being diverted [from Washington Township] shall be restored to the people of Alameda County.” The township’s water advocates strongly supported San Francisco’s bid for water rights in the Hetch Hetchy Valley. Even as area residents rallied, the water drawdowns from Washington Township’s water supply continued.

The fourth appendix to Freeman’s report contained the study’s observations and conclusions on the Alameda Creek system, stating that:

“Among all of the undeveloped sources of water supply owned by the Spring Valley Water Company, the only ones that I find of noteworthy importance for increasing the water supply to San Francisco are those of Alameda Creek lying upstream from the Niles Canyon. These



comprise three [potential] reservoirs for storage of the floodwaters of Calaveras Creek and the Arroyo Valle; also a further development of the groundwater supply by means of new lines of wells to be pumped located farther up the valley than the present Pleasanton wells.”

While acknowledging that there were many differing opinions about the amount of additional water that the Alameda Creek watershed might yield, he believed that another 45 million gallons per day could be transported to San Francisco from this source. However, it was also Freeman’s conclusion that “adverse claims from the Niles Cone farmers cannot be disregarded.” Freeman finally concluded, “Taking all the conditions into account, I am led to believe that construction work on the Hetch Hetchy source should be actively begun inside of five to ten years.” In the interim, Freeman recommended that the Calaveras Reservoir, the site for which was still owned by Spring Valley, should be built as soon as possible, along with a new pipeline across San Francisco Bay to convey the Calaveras waters to the city.⁴²

To rebut San Francisco’s technical studies and defend its own interests, Spring Valley Water Company also commissioned an extensive engineering study of its current and potential future supplies in both the Alameda Creek and San Mateo Peninsula watersheds. Carried out under the direction of Spring Valley’s Chief Engineer F.C. Hermann, this massive October 1912 study included reports by Los Angeles Water Department’s Chief Engineer William Mullholland, and was intended to prove that San Francisco’s study on the need for the Hetch Hetchy system was in error, and that the city’s future water needs could be met by Spring Valley’s existing sources. According to Hermann:

Summarizing the results of this report, I find that the Alameda System is capable of furnishing a dependable yield of 135.8 MGD. The Peninsula System including the coast streams and Lake Merced may be relied upon for a safe yield of 74.2 MGD. This gives a total of 210 MGD available for the City of San Francisco, which, with the ample per capita consumption of 100 gallons per day, well serve a population of over 2,000,000 people. From an average of the estimate of various engineers, this will occur about the beginning of the next [21st] century.⁴³

Dockweiler’s May 28, 1912, speech to the Washington Township public meeting was reproduced in its entirety in an appendix to Spring Valley’s October 1912 report to the U.S. Secretary of the Interior. Entitled “Methods Pursued in Attack on the Resources of the Present Water Supply of San Francisco,” and subtitled, “Illustrating the Destructive Campaign Carried on with Studied and Persistent Effort to Destroy Confidence, Promote Attack and to Undermine the Integrity of the Position of San Francisco’s Water Supply,” the report reprinted copies of several *Washington Press* articles and

The Secretary of the Interior laid down a condition that San Francisco should first purchase the Spring Valley Water Company's system before he would finalize approval of the Hetch Hetchy proposal.

even included a copy of the Associated Chambers of Commerce circular for the May 28 public meeting as further evidence conspiracy between Washington Township and San Francisco to usurp the Alameda Creek water supply and justify building the Hetch Hetchy system.⁴⁴

Dockweiler's representation of San Francisco at the May 28, 1912, public meeting in Washington Township is especially interesting in light of the fact that, by the fall of 1912, he would appear as the principal author of a document entitled "General Information Regarding Proposed Metropolitan Water District, Alameda County, California." Prepared under the direction of a mayoral conference committee of Mayor Mott of Oakland, and the mayors of Berkeley, Alameda, Piedmont, San Leandro, Emeryville, and Albany, Dockweiler is listed as Secretary and Consulting Engineer to the Committee.⁴⁵

In addition to these cities, the proposed district's territory included a narrow strip of unincorporated territory near San Francisco Bay that stretched down to and included the Alvarado wells operated by People's Water Company. These wells were to be the new district's water supply. According to the description, "Each city or town is – provided so desired – to own its distributing system, collect its own water rates, etc. Thus each city will have its own municipal water plant, receiving water at its own town limits from a joint municipal plant, to-wit, the district."⁴⁶

The publication pointed to the Metropolitan Water District of Massachusetts, which supplied the City of Boston and nineteen adjoining communities, and to the Marin Municipal Water District in Marin County, which had been recently formed pursuant to the newly enacted Municipal Water District Law earlier in 1912.⁴⁷ Even though the East Bay mayors had apparently been strong supporters of the Metropolitan Water District Act in 1911, they had thus far been unable to garner sufficient public support for the creation of a regional agency in Alameda County. This was probably due in part to fierce opposition to the proposal from People's Water Company, and to public confusion over whether or not public or private ownership of water systems best met their needs and which was less costly to run.⁴⁸

J.H. Dockweiler was also tasked with preparing a report on the yield of Niles Cone water resources as part of Freeman's study in support of the Hetch Hetchy system. *The Washington Press* noted on August 12, 1912, that Dockweiler's report was "without a doubt the most exhaustive and comprehensive that has ever been completed on the subject," and that it upheld San Francisco's contention that the city had to look to the Sierra Nevada to meet its future water needs. The paper concluded that Dockweiler's findings would be "a valuable defensive measure for us."⁴⁹

By the end of 1912, Dockweiler, Freeman, Spring Valley Water Company executives, and officials from San Francisco, Oakland, Berkeley, and Alameda County had all gone to Washington, D.C., to present their studies and plead their respective cases regarding Hetch Hetchy to President Taft's Secretary of the Interior, Walter L. Fisher. The Alameda County Board of Supervisors had, during the fall, taken action to adopt a resolution on the San Francisco supply issue, opposing the continued diversion of water by Spring Valley to serve San Francisco and supporting the Washington Township residents and farmers, since all of this water "will be required in the near future for the existing and rapidly growing agricultural and horticultural and manufacturing industries in the Niles Cone region."⁵⁰

While Fisher indicated that he would probably support San Francisco's plan, he laid down a condition that the city should first purchase the Spring Valley Water Company's system before he would finalize approval of the Hetch Hetchy proposal. In spite of this potential obstacle, *The Washington Press* believed that Fisher's position would facilitate bringing an end to the Washington Township's water woes: "It is believed that the stand taken by Secretary Fisher will hasten the negotiations between the city and the company and that as soon as the city is granted the Hetch Hetchy right a municipal water district embracing the entire bay section will be formed."⁵¹

While still supporting the formation of a water district that would encompass the entire Bay Area, Runckel and Washington Township residents continued to actively resist the creation of a municipal water district for only a handful of northern Alameda County cities. Such a district, the *Press* argued, would incorporate the area in Alvarado where Peoples' Water Company – which would be purchased by the proposed district – obtained its supplies.⁵²

In a series of articles that appeared between January and March of 1913, Runckel continued to warn of the danger the proposed municipal water district, stating that because the district included the Alvarado section of Washington Township, it would subject the Niles Cone Groundwater Basin to "control of that district." To join that district before a "Sierra supply was actually guaranteed would be the height of folly."⁵³

By February 21, Runckel was accusing the City of Oakland of outright deception, charging that the municipal water district law that had been originally proposed in May of 1911 allowed for unincorporated areas of counties to individually petition to be included in a municipal water district and to subsequently vote on whether or not to join. However, when the bill was presented to the state Senate in December 1911 for a final vote, the legislation had been amended to eliminate those provisions. The rural-area provisions had been deleted as a result of strenuous objections from the mining counties that feared losing control of their water supplies to districts.

Amendments were then proposed by the City of Oakland that would allow only voters of incorporated cities to petition to join a municipal water district; unincorporated area could be included in the proposed district's territory, but could not specifically petition to do so. Further, the agency would be formed once a majority of voters in the entire proposed service area voted in favor of forming the agency, potentially overwhelming the wishes of a sparsely populated area like Alvarado.⁵⁴

Because of Oakland's involvement in proposing these amendments, it was Runckel's conclusion that Oakland was intentionally attempting to foreclose any attempt by the residents of Washington Township to form a water district: "It was feared after the meeting in Centerville in 1911 that our people might take it into their heads to form a water district of their own and it was decided to block such move."⁵⁵

To save the bill from defeat by the mining interests, the Oakland-proposed amendments were passed in the final version of the bill, leading Runckel to declare in a February 28, 1913, headline that the area had been "BETRAYED – Political bosses and their lackeys deliver us to Oakland – Law changed to make seizure of water supply sure."⁵⁶ On March 7, 1913, Runckel informed the public of a Water Committee meeting to be called in Centerville to discuss "the gross injustice of the law by which the City of Oakland is about to seize the underground water supply of our township [that] has now become apparent."⁵⁷

A meeting of the Water Committee was held on March 14, 1913, in Centerville to rally Township residents against the idea of the municipal water district. Once again presided over by Joseph Shinn and the other members of the Washington Township Water Committee, the group passed two resolutions. The first was addressed to the Alameda County Board of Supervisors calling for them to do everything in their power to defeat the proposed municipal water district. This resolution was presented to the Alameda County Board of Supervisors by J.C. Shinn on March 17.⁵⁸ The second resolution was to be sent to the mayors and city councils of Oakland and the other large East Bay cities requesting that they stop the proceedings that would lead to an election on the question of whether or not to form the proposed municipal district.

Just in case these pleas failed, Washington Township residents began going door-to-door collecting donations for a legal defense fund.⁵⁹ Nearly simultaneously, the *Press* began a campaign for a water district that would encompass only the Washington Township area under the banner headline, "A Water District of Our Own."⁶⁰ According to Runckel, "There is a chance for the people of Washington Township to secure favorable cooperation from San Francisco. . . . Our section may be small and our people

few in number compared to Oakland and San Francisco, but our rights in the situation are commanding ones. What we need right now are brains, courage and money.”⁶¹

The initial goal of the Water Committee was to sponsor amendments to the Municipal Water District Act to restore what it believed to be the original intent of the legislation concerning unincorporated areas. Amendments proposed by the Water Committee were subsequently introduced by state Senator Edward K. Strobridge to allow for these areas to individually petition to be part of a municipal water district, and providing that a majority vote in both municipalities and unincorporated areas would be required to create the district.⁶² By March 28, Runckel was informing *Press* readers of a visit by the Water Committee to Sacramento, reporting for the first time that Senator Caminetti “has a bill before the Legislature for creating county water districts.”⁶³

Anthony J. Caminetti represented Amador County and other mountain counties where “mining corporations long since acquired valuable water rights and are not using them to the advantage of the section where they are located.”⁶⁴ Caminetti’s bill, SB 265, had been introduced in January 1913. The bill would specifically allow for the organization of water districts covering unincorporated towns and farmlands to protect the water rights of mountain county residents. He had attempted to pass a similar bill in 1911, but the mining interest had lobbied against the bill and defeated it at that time.⁶⁵

The Washington Press urged residents to protect their water rights by forming their own water district.

Caminetti had a long-standing interest in water supply and irrigation issues, both as a Congressman in the late 1880s and as a state Senator, beginning in the 1890s. While in Congress he had introduced an unsuccessful bill to grant California counties and irrigation districts vacant land sites in the Sierra suitable for reservoirs.⁶⁶ As a state Senator, Caminetti successfully sponsored the Caminetti Act of 1893, which legalized hydraulic mining operations, but which also created a California Debris Commission to regulate these operations. Specifically, the bill was directed toward preventing damage to the state’s rivers by hydraulic mining, as well as overseeing restoration



efforts and developing flood control measures. The Caminetti Act laid the groundwork for later projects in river management and future governmental intervention to solve environmental problems.⁶⁷ By 1910, Caminetti was expressing the need for county storage districts to manage water resources in unincorporated areas. In a statement made during his campaign for reelection in 1910, Caminetti went on record as favoring:

“... a system of protecting counties like ours from a certain fate that will befall people in the near future unless time is ‘taken by the forelocks.’ I have reference to the monopoly of our waters. Already we see and feel the want of a system that will supply the needs of own foothill country for irrigation and power; already do we see the waters pass away from us at such levels as prevent use by our farmers. Counties should have the right that communities elsewhere enjoy to embark into water storage and canal enterprises of their own conduct as public utilities for irrigation and power purposes so that they may be safeguarded in the future from the exaction of monopolies.”⁶⁸

This statement appears to have been the motivation behind what would ultimately be incorporated into Caminetti’s proposed county water district bill.

By April 10, the Washington Township Water Committee was meeting at J.C. Shinn’s home to review “the entire situation with reference to legislation, the formation of a water district and the bringing of suits.”⁶⁹ At that time, the Committee directed its attorney, John C. Nourse, to draft proposed amendments to Caminetti’s bill that would be advantageous to Washington Township’s ability to form a county water district. Nourse was a classmate of Will Patterson’s at Stanford, and the two men played on the Stanford football team in the early 1900s.⁷⁰ Nourse had also served as a Deputy City Attorney in San Francisco between 1904 and 1911, where he was heavily involved in the legal work related to the city’s Hetch Hetchy proposal, traveling twice to Washington, D.C., with a city delegation to present San Francisco’s case to federal officials.⁷¹ He was involved in drafting the original 1909 legislation that would have created a Bay Area-wide metropolitan water district⁷² and would have been very familiar with both the municipal water district proposals and with Caminetti’s original legislation.

By early May 1913, *The Washington Press* was reporting that both the Caminetti bill, with the amendments proposed by Committee attorney Nourse, as well as Senator Strobridge’s amendments to the Municipal Water District Act, had passed the Senate and were being considered in the Assembly. By May 17, both bills had passed the Assembly, and it was reported that, although the Strobridge bill had been amended, “it still safeguards the rights of the unincorporated portion of the county.”⁷³

Several new developments would soon overshadow the promising news on the proposed water district legislation. First and foremost, the water situation in Washington Township was growing more acute to the point of reaching a near-crisis level. By early July 1912, the water table had reached the lowest point in its history. Water levels were falling an inch a day, and all over the Township farmers were deepening their wells in search of water. Comparisons of the drought summers of 1912 and 1913 to the drought years of 1898 and 1899 showed that while identical amounts of rainfall had fallen in both periods, artesian wells still existed at the end of the first dry period; in contrast, by 1913, the water level at these same locations was ten feet below the surface and falling.⁷⁴

On May 10, 1913, the *Press* was reporting that W.D. Bourne, the president of the Spring Valley Water Company, was declaring a “water famine” in San Francisco. As a result, the company determined to move forward with construction of Calaveras Dam, which had been put on hold after the 1906 earthquake. This would mean that the water that would be stored behind the proposed Calaveras Dam would be piped to San Francisco rather than allowed to flow down Alameda Creek to replenish the Niles Cone aquifers.

To add further insult to injury, Spring Valley also expressed its intention to increase its pumping of underground waters in the Pleasanton area. This would have the effect of further reducing Alameda Creek’s flows to the Niles

In 1910, Spring Valley Water Company built a temple to mark the confluence of the waters from the firm’s underground sources and the company’s Alameda system. With classical Corinthian columns, the structure was designed to resemble the Temple of Vesta in Tivoli, Italy.



Cone. Runckel also warned that Spring Valley’s officials had asserted that if the company were not paid the price it was asking for the Calaveras Dam site by San Francisco, it might sell the location to People’s Water Company, which was looking to stop the drive toward a municipal water district by Oakland and surrounding communities. Finally, the *Press* stated that Oakland Mayor Frank K. Mott had gone to Sacramento to attempt to beat back any effort to allow rural areas to form water districts, in an apparent attempt to protect his city’s Alvarado well water supplies.

J.C. Shinn and members of the Washington Township Water Committee had also gone to Sacramento to counter Mayor Mott’s efforts.⁷⁵ By the end of May, a delegation of Township residents had traveled to Sacramento to urge the signing of both the Strobridge amendments and the Caminetti county water district bill. The parties, including Water Committee members and their attorney as well as Mayor Mott and J.H. Dockweiler, had an hour’s hearing before Governor Hiram Johnson to present their respective views on the legislation.

According to Christian Runckel, “Mayor Mott had considerable difficulty in showing the justice of Oakland’s attempt to seize our township water supply until she gets ready to participate in the Hetch Hetchy Project.” However, there were apparently also



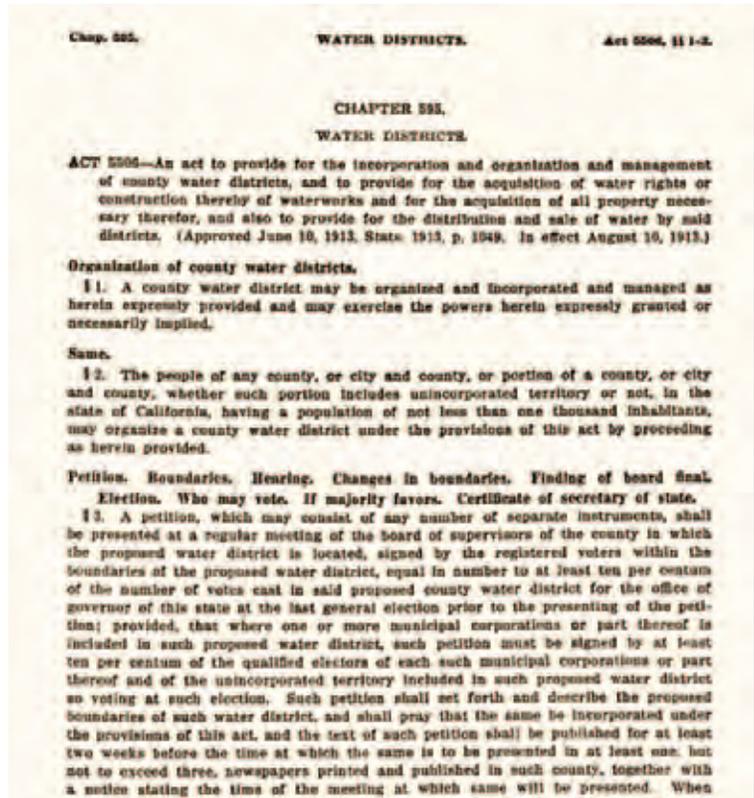
In 1913, as the water situation in Washington Township grew acute, *The Washington Press* learned that Spring Valley Water Company suddenly had laid pipe and was supplying water to Pleasanton. The paper questioned why this was so and what part Spring Valley had in Pleasanton’s wells going dry.

serious legal and constitutional complications with the Strobridge amendments – the language requiring majority votes in both municipalities and unincorporated areas essentially gave the rural areas included in a proposed municipal water district veto power over the formation of the district. As a result, it was strongly opposed by Oakland and other city representatives. However, it appears that Caminetti’s proposed county water district law had not been opposed by either Oakland or San Francisco. Seeing an opportunity, the Water Committee “seized upon the Caminetti bill as the best means to accomplish our end.”⁷⁶

Governor Johnson finally signed what would subsequently become known as the “County Water District Act of 1913” on June 10. The law was to become effective on August 10, 1913, and permitted the people of any county with a population of at least one thousand to organize a county water district. To form the district, at least ten percent of the voters in the previous gubernatorial election had to sign a petition that would be filed with the county board of supervisors specifying the district’s boundaries. Hearings would then be held and the voters of the proposed district would ultimately determine if the district should be formed.

While the Washington Township Water Committee mobilized during mid-summer of 1913 to begin efforts to organize the new district, the water situation grew even more acute, as People’s Water Company increased pumping at Alvarado and the Spring Valley Water Company resumed construction on Calaveras Dam.⁷⁷ The *Press* also continued its warnings about the pending formation of a municipal water district in Oakland, framing it as a matter of extreme concern for the Township:

“It is being rushed through by Mayor Mott and those behind him in order to make the unloading of the People’s Water Co. easier. Under the false pretense that it will relieve the threatened water famine Mayor Mott is jamming the scheme through and doubtless hopes to commit the people of the east bay cities to the purchase of the Peoples’ Water Co. before the Hetch Hetchy matter is finally settled by the present session of Congress. . . . If Oakland can satisfy its needs for the next ten years by draining Washington and Eden Townships she may easily stave off the assumption of any of the portion of the Hetch Hetchy burden. If



The County Water District Act of 1913 finally gave Washington Township what it needed – legislative approval to form a water district, something that previously had been allowed only for incorporated cities. Washington Township lobbied aggressively for this legislation. With the success of the bill, ACWD became the first county water district in California.

the Oakland district is delayed in organizing the effort of our people to form a water district for their own protection may attract undue attention. It will interfere with the plans of Mayor Mott. Of course whatever territory about Alvarado is included in the Oakland district cannot be included in the one which our people are to organize.⁷⁷⁸

Fortunately for the Water Committee, a proposed July 1913 vote on the municipal water district formation was delayed as a result of a complaint from the Alameda County Tax Association, which asked the County to delay the election to save \$40,000 in special election expenses.⁷⁹

Within days of the Caminetti bill's becoming law, over four hundred residents of the Washington Township area had endorsed a petition circulated by the Washington Township Water Committee to form what was to be called the Alameda County Water District (this was twice the number of signatures required to present the issue to the Alameda County Board of Supervisors).⁸⁰ The petition was formally presented to the Board of Supervisors on August 18, 1913, with hearings on the proposed district set for the following month.

San Francisco recovered rapidly from the 1906 earthquake and wanted to show "the world" its success. The City won the bid to host the 1915 world's fair – The Panama-Pacific Expo. Not only did the fair require fresh, clean water, but the ongoing building and rebuilding in San Francisco created enormous needs for water, which Spring Valley Water Company was pulling from Alameda Creek.

A September 29, 1913, Board of Supervisors hearing on the formation petition soon degenerated into a heated session, with attorneys for the Morgan Oyster Company, the Southern Pacific Railroad, Continental Salt Company and the People's Water Company protesting the formation of the district.



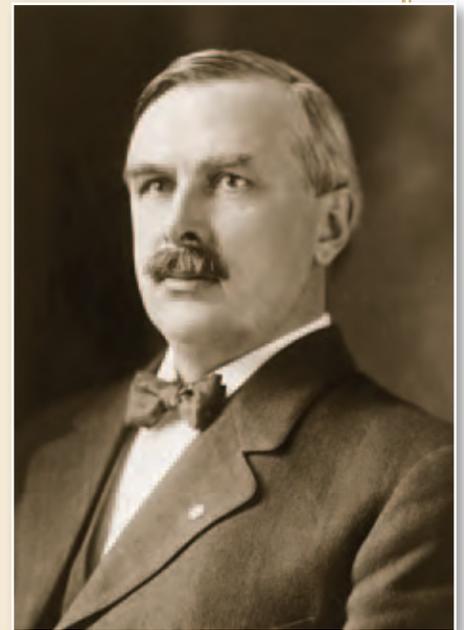
Those who did not oppose the formation itself demanded that their lands be excluded from the district's proposed boundaries. These boundaries were drawn by engineer Cyril Williams to cover the Niles Cone Ground-water Basin in its entirety. Technical objections were raised concerning the description of the boundaries of the district and the manner of signing ten

San Francisco Seeks Hetch Hetchy Proposal Approval Through a Special Act of Congress

President Wilson's new appointee as Secretary of the Interior was former San Francisco City Attorney Franklin K. Lane. In spite of the fact that Lane no doubt looked favorably on the Hetch Hetchy proposal, San Francisco Mayor James Rolph and the city's representatives in Washington decided to pursue the grant through a special act of Congress. Congressman John E. Raker of Manteca agreed to carry the legislation in Congress. The Raker Act proposed to give San Francisco rights of way and use of public lands in Stanislaus National Forest and Yosemite National Park for constructing, maintaining and operating reservoirs, dams, conduits, and other water and power structures.⁸⁴

Congressional debate over the Raker Act and the future of Hetch Hetchy Valley grew to a fever pitch during the summer months of 1913, when the Act was first considered by the House of Representatives during a special session to consider tariff legislation. Governor Hiram Johnson and the California congressional delegation favored the bill as the answer to San Francisco's long quest for a municipally owned water supply. Opposing forces included the *New York Times* and several other prominent eastern newspapers, John Muir and the Sierra Club, the American Scenic Historic Preservation Society, and the Spring Valley Water Company.

Despite the opposition, the city finally prevailed, and the Raker Act passed in the House of Representatives on September 3, 1913. In the Senate, Senator John Works of Los Angeles led opposition to the bill, ostensibly on constitutional grounds in defense of states' rights, and also because Works was not convinced of San Francisco's need for the project.⁸⁵ The Raker Act passed in the Senate on December 6 and President Wilson signed it into law on December 19, 1913. Although a great victory for advocates of a municipally-owned water system for the city, construction of the Hetch Hetchy system and its 150-mile tunnel and pipeline conduits to bring water to the Bay Area from the Tuolumne would take decades to complete. For the foreseeable future, the city would remain dependent on the Spring Valley Water Company and the Alameda Creek watershed for its water supply.



John E. Raker was a Congressman from Manteca. He agreed to carry the Hetch Hetchy legislation, which became known as the Raker Act.

names to the petition was determined to be invalid. Mayor Frank Mott of Oakland asked that any election for the district be scheduled after the date of any proposed Municipal Water District elections. The Board of Supervisors instructed the Committee's representatives to remedy the defects in the petition and return the following month.⁸¹

By early November, the Board of Supervisors finally agreed to the petition, excluding from the proposed district's boundaries properties of several companies (Morgan Oyster, Bay Counties Land Co., and Dumbarton Land Co.) along the tide line that were under water, but denying all other protests.⁸² In yet another victory for the Washington Township Water Committee, the Board of Supervisors refused to set the Municipal Water District election for the same time as the County Water District election. According to Runckel's account of the meeting, Mayor Mott "blew up" when this action was taken, claiming that the establishment of the county district first would jeopardize Oakland's water supply.⁸³

During the months that the Washington Township Water Committee was busy preparing its petition and getting ready for the election, several events were in play which would have far-reaching consequences for the nascent water district. Spring Valley Water Company was rushing the Calaveras Dam to completion. The Panama-Pacific Exposition was scheduled to open in 1915 in San Francisco, bringing an increased water demand that needed to be met. And in Washington, D.C., hearings on San Francisco's Hetch Hetchy proposal, including consideration of the voluminous reports presented by both San Francisco and Spring Valley Water Company, were continued into 1913. Debate grew to a fever pitch that summer, yet by year's end both houses of Congress had approved the Raker Act, and San Francisco had the approval it sought.

A Water District of Our Own

On December 30, 1913, a few days after passage of the Raker Act, the voters of Washington Township went to the polls to vote on forming their own water district. They voted in favor of the District by the overwhelming majority of 883 to 18.⁸⁶

Alameda County Water District thus became the first water district in the state formed under the Caminetti Bill (now known as the County Water District Act of 1913).

For Runckel, the passage of the law was "a great victory for our people out of which still greater ones may be achieved. . . . It is a law which will greatly benefit many of the counties of the state and do much for their development." In fact, within a few years of its formation, the District would be

joined by the Eden Township County Water District to its north and the Pleasanton County Water District in eastern Alameda County.

Almost simultaneous with its creation, the fledgling District was embroiled in litigation. Dumbarton Land and Improvement Company, not wanting to have its lands taxed by the District, filed a suit challenging the validity of the district election. The company claimed that the procedures to hold the election had not fully complied with the requirements of law. *The Washington Press* viewed Dumbarton Land as a mere surrogate of Spring Valley Water Company or People’s Water Company (or both), explaining in a January 3, 1914, editorial:

“We are confident the Alameda County Water District has come to stay. We would also suggest to the Dumbarton Land Company that their willingness to be used as a catspaw [sic] in this case for the Spring Valley Water Company, the Peoples’ Water Company, and other selfish interests is taxing the patience of the people of the township. . . .”⁸⁷

While questioning the authority of the District election, these corporate interests also argued that the Caminetti legislation itself was unconstitutional because the statutes failed to compel any district organized under its provisions to declare what waterworks system the district planned to develop.⁸⁸

Despite the pending litigation, the Alameda County Board of Supervisors set an election for the Alameda County Water District Board of Directors for March 31, 1914. Only five candidates were put forward, including W.D. Patterson and J.C. Shinn, who both had served on the Washington Township Water Committee. Other candidates were E.H. Stevenson, William Trenouth, and Emanuel George. All five candidates were subsequently elected on March 31.

After the election was certified by the Board of Supervisors in early April, the board met and elected officers. Named President was J.C. Shinn, who held a deep concern for the future of the community, and named Vice President was E.H. Stevenson, who had run for the county board of supervisors in 1912 on a strong platform of opposition to the diversion of water from Washington Township.



On December 30, 1913, Washington Township voters approved a measure to form their own water district by the overwhelming majority of 883 to 18.

Given the many legal issues confronting them, the second action of the new Board after the election of officers was to appoint John T. Nourse as Attorney for the District. Nourse would serve in this capacity until he was appointed to the Superior Court bench in San Francisco in 1917.

Christian Runckel, who was so instrumental in agitating for the formation of the new district, ran for no office, since it was believed that he would have been a target of the special interests he had fought so long in his *Press* editorials.⁸⁹ He was instead chosen Secretary-Auditor of the District on June 17, 1914.

By August 26, Consulting Engineer Cyril Williams, Jr., was chosen to be the District's General Manager.⁹⁰ Although holding the title of General

ACWD's First Board of Directors

On May 11, 1914, five newly elected board members convened the first meeting of the Alameda County Water District (ACWD). Reflecting the population of Washington Township in southern Alameda County, counted among the five were nurserymen, orchardists, ranchers, and farmers. Some of them represented families that had been in Washington Township since the Anglo settlement of the area in the mid-1800s.



JOSEPH C. SHINN, *President*

Shinn's family had established the first nursery in the area. He lived near Niles and had large properties bordering Alameda Creek.



E.H. STEVENSON, *Vice-President*

Stevenson's property lay near Centerville, where he grew grain, sugar beets, and some fruit.



WILLIAM TRENOUTH

Trenouth, a fruit-grower, owned orchards near Irvington, the heart of Washington Township.



EMMANUEL GEORGE

Also primarily an orchardist, George lived at the southern end of the District, near Alviso School.



WILLIAM PATTERSON

The youngest board member was William Patterson, whose 3,000-acre ranch lay north of Newark.

Manager, as was required by the County Water District Act, the subsequent minutes and extant correspondence during his tenure with the District through the mid-1930s refer to Williams as “Engineer” rather than “General Manager.” This is probably because much of the executive-level management of the District in its early years was carried out primarily through members of the Board, most especially by Will Patterson and J.C. Shinn, both of whom carried out complex negotiations and had significant levels of policy implementation responsibility delegated to them.

The long-awaited election for the Municipal Water District that would include Oakland and the surrounding cities in northern Alameda County, as well as the Alvarado well area in Washington Township, was finally called by the Board of Supervisors on April 27, 1914. The election was scheduled for June 2, 1914, but not before the Board of Supervisors adopted a petition to exact a pledge that one member of the proposed municipal water district board would be appointed by the Board of Supervisors, and that the appointee would be required “to submit to the people of the district any and all propositions which may be offered or contemplated for the purchase or acquisition of a water supply for said Municipal Water District.”⁹¹ On June 2, the municipal water district proposal was defeated by a vote of 13,668 against to 10,711 voting for its formation.⁹² To add further insult to injury for Oakland Mayor Mott, while Berkeley voters approved the measure easily, the independent-minded Oakland voters defeated the measure by a two-to-one margin.⁹³ Oakland, Berkeley, and other East Bay cities would continue to demur on the question of joining San Francisco to bring Hetch Hetchy water to the East Bay until they finally decided to seek their own Sierra supplies from the Mokelumne River in the early 1920s.

With the municipal water district threat cleared away, by October 1914, a lower court finally ruled that the County Water District Act was in fact constitutional. At its October 17 meeting the Board of Directors wasted no time in authorizing attorney John Nourse to file a lawsuit against Spring Valley Water Company, thereby commencing a protracted period of legal challenges from the District in support of its water rights that would continue well into the 1930s.⁹⁴ To raise funds for operations, at its June 17, 1914, meeting, the Board authorized a loan of \$3,000 and also exercised its taxing powers by passing a levy sufficient to produce \$6,000 in revenue for Fiscal Year 1914-15.⁹⁵ The majority of these funds, not surprisingly, would go to pay for legal and engineering services.

Summary: Born in Battle, ACWD is founded to fight for Washington Township’s interests

Over the four years since Christian Runckel’s September 1910 editorial on the threat to local water supplies, the 8,000 residents of Washington Township, initially complacent to the threats posed by Spring Valley Water

Company, Peoples' Water Company and other private water companies, had organized the Washington Township Water Committee to fight for their interests. With the Water Committee's support, the Caminetti bill was successfully amended and passed, and the residents of this small rural enclave moved quickly to form the Alameda County Water District. Residents in the northern, more urbanized areas of Alameda County had already defeated one regional proposal, and would defeat another one in 1918 before finally forming a regional public agency to manage their water supplies in 1923.

Washington Township residents early on realized the benefits of a regional public agency to protect and develop their current and future water resources. In many ways, they had no choice – forced by circumstances to organize to protect their local water supplies from being exported out of the township, and with no municipal government in the area, a special purpose district was their only alternative to potential disaster. Many challenges lay ahead for the fledgling water district, and the outcome of the battle over the Township's water supplies was by no means certain.

Born in battle, the District had more battles still to fight, but for better or for worse, Alameda County Water District was off and running.

Chapter 1 Endnotes

¹⁴The Spring Valley Menace," *The Washington Press*, September 9, 1910. Capitalizations in the original article.

¹⁵Marianne Babel, "A History of Spring Valley Water Company," (unpublished Master's thesis, University of California at Santa Barbara, 1993), Bancroft Library, University of California at Berkeley, p. 39.

¹⁶*Ibid.*, pp. 16-17.

¹⁷John E. Caswell, PhD, "Oral History of the Alameda County Water District by W.D. Patterson, August 1954," ACWD historical records, Box 4004, p. 4.

¹⁸December 1920 letter from J.C. Shinn to Attorney George Clarke, ACWD historical records, Box 4005.

¹⁹Babal, p. 40

²⁰P.H. Atkinson, "Report on the Notices of Appropriation of Water Which Have Been Filed on Those Creeks. . .From Which the Spring Valley Water Company is Drawing Water. . .through its Alameda System from 1872. . .To Sept. 1913," October 10, 1913, Secretary's files, Calaveras Dam – correspondence, 1911-14, Spring Valley Water Company Records, Bancroft Library, University of California, Berkeley, CA.

²¹Ray W. Taylor, *Hetch Hetchy*, (Ricardo Orozco Publisher, San Francisco, 1926), p. 10.

²²Norris Hundley, Jr., *The Great Thirst, Californians and Water: A History* (Berkeley: University of California Press, 1992, revised ed., 2001), pp. 172-173.

²³Population figures and township organization description was obtained from California Department of Finance, www.dof.ca.gov/research/demographic/reports/census-surveys/totals1860-1950/documents/Pop-Twnshp:AlamedaCounty.xls; On Washington Township history, see Alameda County GenWeb Project, <https://sites.google.com/site/...townships/Washington-township-1876>.

²⁴Taylor, pp. 19-20.

²⁵Taylor, pp. 14-15; Spring Valley Water Company, "The Water Supply of San Francisco," undated, circa 1911-12, (Blair-Murdoch Co., San Francisco), p. 2.

²⁶Western Journal of Education, volume 3, September, 1898 (San Francisco, CA).

²⁷Caswell, Patterson Oral History, p. 4.

²⁸Christian Runckel, "Ninety Years of California History," *California Yesterdays: The Second Historical Yearbook of the California Retired Teachers' Association*, (1935), pp. 21-22, quoted in John Caswell, PhD, *Alameda County Water District: the First Four Decades* (unpublished history, Palo Alto, CA, 1956), ACWD historical files, Fremont, CA., pp. 21-22.

²⁹Caswell, Patterson Oral History, p. 4.

³⁰"For President: Robert M. LaFollette," *The Washington Press*, October 27, 1911; and "The Press and Its Policy," *The Washington Press*, September 18, 1909.

³¹Hundley, pp. 173-174.

³²Hundley, pp. 175-186.

³³Sara Elkind, *Bay Cities and Water Politics: The Battle for Resources in Boston and Oakland* (Lawrence University Press of Kansas, 1998), pp. 35 and 39.

³⁴Elkind, pp. 67-71.

³⁵Elkind, p. 71.

³⁶Caswell, Patterson Oral History, p. 5.

³⁷Caswell, Patterson Oral History, p. 5.

³⁸Spring Valley Water Company, "The Future Water Supply of San Francisco," a Report to the Secretary of the Interior and the Advisory Board of the U.S. Army, (San Francisco, 1912), p. 287.

³⁹Edward Hyatt, Jr., *The Precise Determination of the Replenishment and Draught from the Niles Cone Aquifer* (unpublished civil engineering Master's thesis, Stanford University, 1920), p. 163. ACWD historical records, Box 4004.

⁴⁰"Our Platform," *The Washington Press*, August 4, 1911.

⁴¹"Perfect Bill for a Water District," *San Francisco Call*, Volume 105, Number 55, January 24, 1909; "For a Metropolitan Water District," *San Francisco Call*, Volume 105, Number 149, April 28, 1909.

⁴²"Mass Meeting at Centerville a Decided Success," *The Washington Press*, November 3, 1911.

⁴³"Mass Meeting at Centerville a Decided Success," *The Washington Press*, November 3, 1911.

- ³¹Elkind, p. 127; and “Good News for Our People,” *The Washington Press*, December, 1911; and “History of Marin Municipal Water District,” at www.MMWD.org.
- ³²“Let Us Proceed with Deliberation,” *The Washington Press*, January 5, 1912.
- ³³Report of Meeting of the Associated Chambers of Commerce of Washington Township, Alameda County, Held at Centerville, May 28th, 1912,” in file: S.P. Eastman: Water Districts – Pleasanton, Niles, Alameda (Misc. Memoranda), 1912-1915, carton 9 folder 33, Spring Valley Water Company Records, Bancroft Library, University of California at Berkeley.
- ³⁴Quoted in: Spring Valley Water Company, “The Future Water Supply of San Francisco, a Report to the Secretary of Interior and the Advisory Board of Engineers of the U.S. Army,” (San Francisco, 1912), p. 250.
- ³⁵Spring Valley Water Co., “The Future Water Supply of San Francisco,” pp. 250-251.
- ³⁶“Important Move Made on Water Question,” *The Washington Press*, June 7, 1912 and June 14, 1912.
- ³⁷Spring Valley Water Company, “The Future Water Supply of San Francisco,” including a “Report on the Productivity of Livermore Valley Using Data by Cyril Williams, Jr. on the Alameda Creek System to J.R. Freeman,” p. 193.
- ³⁸Caswell, Patterson Oral History, p. 7.
- ³⁹University of San Francisco History, at www.usfca.edu/about/history/over_there.
- ⁴⁰“San Francisco Municipal Reports for Fiscal Year 1097-08,” (Neal Publishing Co., San Francisco, 1909), p. 943.
- ⁴¹“San Francisco Municipal Reports for the Fiscal Year 1212-13,” (Neal Publishing Co., San Francisco, 1915), p. 499, “Report on the water yield of the Hetch Hetchy, Cherry Creek and Lake Eleanor Watersheds by Cyril Williams, Jr.”
- ⁴²Appendix No. 4 to “Report of John R. Freeman filed with the Advisory Board of U.S. Engineers, July 14, 1912, Said Appendix Setting Forth Freeman’s Views Upon the Dependable Yield of the Alameda Creek System of the Spring Valley Water Company,” (Box 47, folder 94-2, Joseph B. Lippincott Papers, Water Resources Center Archives, University of California at Berkeley), pp. 2x-3x.
- ⁴³Spring Valley Water Co., “Future Water Supply of San Francisco,” p. 85.
- ⁴⁴Spring Valley Water Co., “Future Water Supply of San Francisco,” p. 192.
- ⁴⁵J.H. Dockweiler, “General Information Regarding Proposed Metropolitan Municipal Water District, Alameda County, California,” 1912, (Bancroft Library #PF862.25, University of California at Berkeley), p. 1.
- ⁴⁶Dockweiler, p. 6.
- ⁴⁷Dockweiler, p. 8.
- ⁴⁸Elkind, p. 122.
- ⁴⁹“Report on Niles Cone,” *The Washington Press*, August 2, 1912.
- ⁵⁰Minutes, Alameda County Board of Supervisors, Volume 42, p. 195, (Oakland, CA).
- ⁵¹“Hetch Hetchy Case Not Yet Decided,” *The Washington Press*, December 6, 1912.
- ⁵²“Grave Danger to Our People,” *The Washington Press*, January 3, 1913.
- ⁵³“Water Situation Becoming Serious,” *The Washington Press*, January 3, 1913.
- ⁵⁴“Up to the Governor,” *The Washington Press*, June 7, 1913.
- ⁵⁵“Water District Election,” *The Washington Press*, April 19, 1913.
- ⁵⁶“BETRAYED,” *The Washington Press*, February 28, 1913. Emphasis in original.
- ⁵⁷“A Legal Outrage,” *The Washington Press*, March 7, 1913.
- ⁵⁸Alameda County Board of Supervisors Minutes, March 17, 1913, Volume 42, p. 377.
- ⁵⁹“Township People Will Protect their Rights,” *The Washington Press*, March 21, 1913.
- ⁶⁰“A Water District of Our Own,” *The Washington Press*, March 14, 1913.
- ⁶¹“A Water District of Our Own,” *The Washington Press*, March 14, 1913.
- ⁶²“Up to the Governor,” *The Washington Press*, June 7, 1913.
- ⁶³“Our Visit to Sacramento,” *The Washington Press*, March 28, 1913.
- ⁶⁴“The New County Water District Law,” *The Washington Press*, June 21, 1913.
- ⁶⁵“The New County Water District Law,” *The Washington Press*, June 21, 1913.
- ⁶⁶John P. Giovinco, *The California Career of Anthony J. Caminetti*, (unpublished PhD dissertation, University of California at Berkeley, 1973), p. 116.
- ⁶⁷Giovinco, p. 102.
- ⁶⁸Giovinco, p. 117. Quoted from “Press and Senators: Republican Newspapers and Senators Commend Senator Caminetti,” *California Weekly*, July 1, 1910.
- ⁶⁹“Water Committee Meeting,” *The Washington Press*, April 12, 1913.
- ⁷⁰Caswell, Patterson Oral History, p. 7.
- ⁷¹Lewis Byington, *History of San Francisco*, (Chicago: S.F. Clarke Publishing, 1931), pp. 182-186; and *Stanford Illustrated Review*, Volume 21, Issue 5, p. 255.
- ⁷²See “Perfect Bill for a Water District,” *San Francisco Call*, Volume 105, Number 55, January 24, 1909.
- ⁷³“Up to the Governor,” *The Washington Press*, May 17, 1913.
- ⁷⁴*The Washington Press*, July 12, 1913.
- ⁷⁵“Water Question Growing Acute,” *The Washington Press*, May 10, 1913; and “Every Year Will be a Dry Year,” *The Washington Township Press*, May 17, 1913.
- ⁷⁶“The New County Water District Law,” *The Washington Press*, June 21, 1913.
- ⁷⁷“Water Levels Now Lowest in History of the Township” and “Calaveras Dam is Being Built,” *The Washington Press*, July 12, 1913.
- ⁷⁸“Should Be Warned,” *The Washington Press*, July 5, 1913.
- ⁷⁹“Mayor Mott Grows Anxious,” *The Washington Press*, June 21, 1913.
- ⁸⁰“Many Signers for Water Petition,” *The Washington Press*, August 23, 1913.
- ⁸¹“Water District Petition Withdrawn by Water Committee,” *The Washington Press*, October 4, 1913.
- ⁸²Minutes, Alameda County Board of Supervisors, November 12, 1913, Volume 43, p. 248 (Oakland, CA).
- ⁸³*The Washington Press*, November 29, 1913, page 1, columns 1-5.
- ⁸⁴Babel, p. 77.
- ⁸⁵Babel, p. 78.
- ⁸⁶“Smashing Victory for Water District,” *The Washington Press*, January 3, 1914.
- ⁸⁷“Will Try to Kill Water District,” *The Washington Press*, January 3, 1914.
- ⁸⁸“What Will be the Fate of the Water District Law?” *The Washington Press*, April 4, 1914.
- ⁸⁹Caswell, Patterson Oral History, p. 7.
- ⁹⁰Minutes, ACWD Board of Directors, Volume 1, p. 2 (June 17, 1914) and p. 15 (August 26, 1914).
- ⁹¹Minutes, Alameda County Board of Supervisors, Volume 43, April 27 1914, page. 59 and May 11, 1914, p. 152, (Oakland, CA).
- ⁹²Minutes, Alameda County Board of Supervisors, Volume 43, p. 199.
- ⁹³Elkind, p. 123.
- ⁹⁴Minutes, ACWD Board of Directors, Volume 1, October 17, 1914, p. 19.
- ⁹⁵Minutes, ACWD Board of Directors, Volume 1, June 17, 1914, p. 5.



This map shows Spring Valley Water Company's properties in San Francisco, San Mateo, Santa Clara, and Alameda counties in 1911.

Chapter 2 • 1914 to 1930: In the Courts

While the ACWD Board of Directors was considering the next steps in securing the area's water supplies, the *Township Register*, a rival to *The Washington Press*, was taking the newly formed water district to task for spending too much money for vague benefits. In an April 29, 1915, article under the headline "Water District is Not Wanted," the *Township Register* alleged that the same directors of the district who sold their water rights to Spring Valley Water Company were now "making this fight" to get back what they had previously sold, that the district's formation may have been "fostered by political interests in San Francisco," and that voters "regret the formation of the district." The paper quoted one resident as saying: "When I voted for this thing, I didn't know what I was voting for; that's all I can say for myself," and further, "Well, it's too late now, we're stung all right. All I want to know is how much we are going to have to pay when the suits begin."¹

*"Well it is too late now,
we're stung all right. All I
want to know is how much
we are going to have to pay
when the suits begin."*

– WASHINGTON TOWNSHIP
RESIDENT, 1915

The unnamed resident quoted above was right about one thing – from the moment of its creation as a special district and continuing into the 1930s, ACWD would be embroiled in a series of disputes and lawsuits, initiated both by the District, and against it by its many opponents. These included the suit filed by the Dumbarton Land and Improvement Company within days of the December 1913 vote to form the District challenging the validity of the election itself, and a suit authorized by the ACWD Board in October 1914 against the Spring Valley Water Company. At that time, the District's Board directed Attorney John Nourse to "initiate such legal proceedings as shall determine the rights of the property owners of the said Alameda County Water District, in and to the water supply of said Alameda Creek drainage basin and to use all efforts in his power to secure and redress the rights of said property owners in and to said water supply against present or contemplated diversion of said water supply by the said Spring Valley Water Company." General Manager and Engineer Williams was also directed to provide any data that Nourse might require for the lawsuit.²

The water district's board and staff anticipated that the Spring Valley Water Company would question the very existence of any hydrological connection between Alameda Creek's flows and groundwater recharge in the Niles Cone Groundwater Basin. Williams took several months to collect and verify the information that Nourse would need to support the lawsuit. He completed his study on the surface flows and Niles Cone aquifer levels by late winter of 1915 and presented his report to the Board of Directors on March 13. Williams reported that he and his assistants had surveyed the region to locate wells and old stream channels and to measure groundwater

elevations, in addition to placing several gauging stations in Alameda Creek and its tributaries to measure winter stream flows. According to Williams, these results proved “absolutely that the gravels [of Niles Cone] are fed by the storm flows of Alameda Creek . . .”³ Williams also stated that over six hundred wells in the district were being monitored to determine the correlation between stream flows and changes in groundwater levels.

Armed with Williams’ study, Nourse filed the suit against Spring Valley in mid-April 1915, seeking an injunction against Spring Valley to stop its construction of Calaveras Dam to divert water from the Alameda Creek Watershed. The site chosen for Calaveras Reservoir was well situated to impound water from streams flowing down the gorges of the Coast Range into Alameda Creek and the Sunol Valley. The proposed site had a watershed area of 101 square miles flowing into Calaveras Creek and Arroyo Hondo, near the border between Alameda and Santa Clara Counties, and 35 square miles flowing into Upper Alameda Creek, for a total of 136 square miles. Construction on the reservoir was begun by Spring Valley Water Company in 1913.⁴

The lawsuit cast a major portion of San Francisco’s water supply into question just two days before San Francisco voters went to the polls to vote in a bond election to purchase the Spring Valley system following a 1913 condemnation action that had been filed against Spring Valley in light of years

Calaveras Creek c. 1911



of stalled purchase negotiations. This was an intentional strategy on the District's part. In a March 4, 1915, article in the *Oakland Tribune*, attorney John Nourse is quoted as saying that:

It is our purpose to bring this action before the election is held so that the voters of San Francisco may understand that in the purchase of the Spring Valley Plant, they would acquire property that is of questionable value. . . .⁵

The strategy apparently worked. On the April 20, 1915, Election Day, 39,975 San Francisco voters favored the proposition to purchase the Spring Valley system, and 33,518 opposed the deal, falling far short of the two-thirds majority required to carry it.⁶

The complaint in *Alameda County Water District v. Spring Valley Water Company* stated that the water district included 44,000 acres of land, the majority of which was used for orchards and farms. The complaint went on to state that irrigation was thus necessary for the region's survival, and that without water the district's lands, which also included several towns, would become worthless. Drawing upon Williams' studies, the complaint declared that Alameda Creek replenished the groundwater of the Niles Cone, from which these irrigation supplies came. Finally, charging that the Spring Valley Water Company's Calaveras Reservoir would store and divert "practically all of the waters of said Alameda Creek," the complaint asked that Spring Valley be enjoined from interfering with Alameda Creek's flows and from constructing Calaveras Dam.⁷

By August 1915, Spring Valley countered with a petition to the Alameda County Board of Supervisors protesting a property tax the ACWD Board wished to levy on lands within the district, including lands held by the company, and asking that the county not levy the tax. The petition alleged that ACWD had not been formed legally (similar to the claims of Dumbarton Land and Improvement Company), and that the proposed tax was "unnecessary and extravagant."⁸

The Water District struck back on August 21 when the Board passed a resolution that "the Engineer and Attorney of this District be instructed to appear before the Board of Supervisors of Alameda County, the California Railroad Commission and the proper Federal authorities to protest against the menace that threatens the residents of this District in the building of the Calaveras Dam by the Spring Valley Water Co., and that the Secretary be instructed to make a similar protest to the District Attorney of Alameda County."⁹ By 1914, the California Railroad Commission had received the power to regulate public utilities in the Public Utilities Act, which also empowered the commission to fix compensation paid by municipal governments for public utilities.

Legal wrangling and maneuvering would continue throughout 1915, with Spring Valley contending in its answer to the complaint that the water district had no legal standing to file it because none of the landowners of the district were parties to the complaint (this defect was corrected with an amended complaint subsequently filed by the district). Spring Valley further denied that there were water-bearing strata under the lands of Niles Cone and also denied that Alameda Creek’s flows replenished these aquifers. In addition to other legal and factual arguments, the company contended that it had legally appropriated all of the water that it planned to store behind Calaveras Reservoir, and that it had riparian rights to all of the lands that were owned that were adjacent to Alameda Creek and its tributaries above the Niles Cone.¹⁰

Legal challenges escalated further when in December 1915 Dumbarton Land and Improvement Company and California Salt Company filed yet another suit against ACWD, seeking this time to block the district from expending funds on its litigation against Spring Valley. *The Washington Press* characterized this effort as a thinly veiled attack by Spring Valley, editorializing on May 23, 1916: “Whether the prayer of the corporations who are pulling Spring Valley’s chestnuts out of the fire is to be heeded more speedily than the thousands of people forming our district is a question which will be keenly watched by people all over Alameda County.”¹¹

As water ran over Spring Valley Water Company’s small, concrete dam at Sunol (shown here in 1911), it would be collected into an aqueduct. The water was combined with additional water gleaned from the company’s filter galleries at Sunol and exported to San Francisco.

While legal maneuvering continued, settlement talks between Spring Valley and the water district finally yielded some fruit when, after lengthy



discussions, the ACWD Board of Directors voted to approve a proposed agreement with Spring Valley to submit the dispute over Alameda Creek to the California State Water Commission (the predecessor to today's State Water Resources Control Board) for binding arbitration.¹² The Commission had been established in 1914 as the agency responsible for adjudicating water rights throughout the state, based on a similar agency recently created in Oregon.¹³

This proposal to pursue binding arbitration had been endorsed two days before the ACWD Board's action at a mass meeting of Washington Township residents and well users. *The Washington Press* laid out the reasons why binding arbitration appeared to be the best way to proceed.

1. The three members of the Commission were considered to be eminently qualified and objective. Albert E. Chandler was a man "of splendid ability and the highest integrity," and was thoroughly familiar with water law (Chandler had written the seminal *Elements of Western Water Law* in 1913). Editor Irving Martin of the *Stockton Record* was "one of the squarest, ablest and most conscientious men in the state." The third member, W.A. Johnstone, was identified as being from southern California and "was the man who fathered the law creating the commission."
2. Binding arbitration would be less expensive than continued litigation with Spring Valley, and acceptance of arbitration by the company was in itself considered a minor victory, since Spring Valley had previously contended that it need only deal with individual farmers and not with the Alameda County Water District itself.
3. The *Press* concluded that "if the case were submitted to these men there is every reasonable chance the district will receive just treatment."¹⁴

The arbitration agreement stipulated that the district and the company would ask the State Water Commission to study the relationship between surface flows in Alameda Creek and groundwater in the Niles Cone for a period of three years. The investigation would be fully funded by Spring Valley, which would allocate \$10,000 per year to the Commission to cover the costs of the study. Both parties agreed to make any data they might have in their possession available that would assist the study effort. The stated purpose of the study was to determine if and how Spring Valley could store additional surface flows for diversion to San Francisco without further depleting the groundwater of the Niles Cone. The legal proceedings between the District and company would be postponed during this three-year period, and the litigation dismissed when the arbitration settlement was concluded.

Five wells were to be selected in the Niles Cone for monitoring during the three-year period, and Spring Valley was to release flows from Calaveras



Leal Tank House

Most farms in Washington Township had a water tower or tank house. Farmers would fill the elevated tanks via windmill-powered pumps, usually running in the evenings when the breezes came up. The tank house pictured here was built in 1925 and was moved from Leal Ranch to Ardenwood Historic Farm in 2004. Typical of the era, the tank house had a ground-level room to store everything from smoked meats to milking equipment and rain gear. Above the storage space was a spare room, which would stay cool in summers below the 5,000-gallon water tank. When in use at Leal Ranch, the tank provided water for the house, horses, and cattle from 1925 until 1982.

Reservoir sufficient to maintain groundwater levels in those wells at the same level as existed in 1914. Finally, the three State Water Commission members agreed to act only as individual arbitrators and not as representatives of an official state agency.¹⁵ Paul Bailey was selected as the engineer who would undertake the three-year study. Bailey was at the time an employee of the State Water Commission, and would later become California State Engineer and help formulate the State Water Plan, which was sub-

sequently built by the federal government and known today as the Central Valley Project.

Paul Bailey forwarded his “Engineer’s Report on Alameda Creek Investigations (Progress Report No. 1), October 1916,” on November 9, 1916. It would be the first of twenty-one reports that Bailey would issue between 1916 and 1921. The October 1916 report set forth the scope of the investigation, which would include the following key tasks: 1) a determination of water rights ownership in the area, 2) a study of Alameda Creek flows, 3) an assessment of the effect of Alameda Creek’s flows on groundwater levels in Alameda County Water District, and 4) a conclusion about the ultimate water requirements of the district.¹⁶

With Bailey's study providing the foundation for a potential resolution to the conflict with Spring Valley Water District, the ACWD Board turned its attention to the other main contenders for Alameda Creek and Niles Cone supplies – Oakland and the Peoples' Water Company.

After the failure of the proposed Municipal Water District vote in 1914, the District took immediate steps to annex the Alvarado area, including the People's Water Company's wells, into the Alameda County Water District. Alvarado was not included in the District's original petition for organization, in part because the area had already been included in the then-pending election for a Municipal Water District. There appears to have also been an engineering reason for this omission, since Engineer Cyril Williams had not yet determined to his satisfaction that the Alvarado wells actually drew water from the Niles Cone. It was only after Williams had sufficient evidence that both Alvarado as well as an area of unincorporated Hayward to the north of Alvarado were part of the Niles Cone that a petition to include Alvarado in the district was drawn up.¹⁷ On December 18, 1915, the annexation was approved by Washington Township voters by a margin of 454 to 15.¹⁸

Annexation of Alvarado into the district's boundaries did not stop the People's Water Company's pumping at the wellfields, however. Although the Board had authorized a lawsuit against the Peoples' Water Company at the same 1914 meeting as a suit was authorized against Spring Valley Water Company, the Spring Valley suit took precedence. Almost two years had elapsed before Nourse was again instructed on September 16, 1916, to seek an injunction against the Peoples' Water Company, less than two weeks after reaching the arbitration agreement with Spring Valley.¹⁹

When it appeared that the Peoples' Water Company might be willing to negotiate, Nourse was instructed to "ascertain if they were willing to enter into an agreement with this District whereby the average monthly amount of water to be pumped for diversion from this District can be fixed in accordance with the actual amount to which they are legally entitled."²⁰ Unfortunately, before any progress could be made, Peoples' Water had sold out to the East Bay Water Company.

Negotiations with East Bay Water dragged on for a year. By November 3, 1917, Cyril Williams reported that the company had "as yet failed to furnish certain data relative to the amount of water pumped by the company at Alvarado."²¹ The following month, John Nourse reported that an attorney for the company continued to insist that in any agreement "the right of the company to divert a fixed amount of water based upon its previous diversions shall be conceded and guaranteed, irrespective of seasonal rainfalls."²² This position was obviously not acceptable to the ACWD Board.



Representatives of the Oakland Water Co. in Alvarado with an artesian well, which was bored in 1894.



Calaveras Dam Fails in the Midst of Drought

In 1913 Spring Valley Water Company began building Calaveras Dam near the border between Alameda and Santa Clara counties. The reservoir impounded water from streams in a watershed area of over 100 square miles.



In March 1918, as the area was suffering from a two-year drought, Calaveras Dam partially collapsed because of flaws in engineering. The photos in this series show the dam the day before the collapse, the day of the event (March 24), and the following day. The replacement dam was not completed until 1925.

Without the full storage capacity of the dam, the water company not only had difficulty meeting its obligations to San Francisco, it also was unable to fulfill its obligations for additional releases to replenish the Niles Cone aquifers.



At the same meeting as he made this report, Nourse resigned as the District's attorney, having accepted an appointment as a Superior Court Judge in San Francisco. By April 1918, the Board had appointed George Clark of the Berkeley firm of Elston, Clark and Nichols as the District's attorney. Clark would serve as the District's counsel from 1918 until 1954.

By May 1918 the disagreement between East Bay Water Company and ACWD over the firm's well pumping grew even more strained when the company announced that it planned to increase its pumping by using wells owned by Alameda Sugar, which was also within the ACWD's boundaries. At a meeting with the Board of Directors on June 1, 1918, East Bay Water's president and chief engineer appeared before the Board to discuss this action, proposing to take 300 million gallons in addition to their pumping from the Alvarado wellfield. The reasons given for this increased pumping need was that the war industries had greatly increased water consumption far beyond the company's expectations, the area was suffering from a two-year drought, and the company's projects to build San Pablo Dam and to develop wellfields in East Oakland and San Lorenzo had been started but not yet completed.²³ There were significant protests registered by a number of farmers in the District, and Cyril Williams reported on the impact on the District's water supplies in the Niles Cone:

“The draft that is proposed from these new wells would seriously affect the water supply of the District. The district is too seriously affected by the extreme dryness of the season and the failure of the water being released [from Calaveras Reservoir by the Spring Valley Water Company due to the drought] to be willing to be further embarrassed and injured through the removal of a large portion of its gravel [water] supply which would result from additional pumping near Alvarado.”²⁴

In response to Williams' declaration, it was agreed that the engineers of the District and the company would review the situation together before taking action. However, a number of landowners and the Board also determined to take preparatory legal steps to prevent “any further increased diversion of water from the District.”²⁵ A month later, the District's attorneys were instructed to lodge a protest with the company against any increased diversions of water.

A long period of crisis was facing the District. Both San Francisco's and Oakland's water needs continued to grow. As more farmers turned from grain to vegetables and orchards, the District's water needs were also growing. The competition for water is reflected in the following excerpt from a table in Paul Bailey's “Engineer's Report on Pumping Draught and Irrigation from the Underground Waters of the Alameda County Water District.”²⁶

<u>Year</u>	<u>Irrigation</u>	<u>Export</u>
1911	852	9841
1912	1340	9065
1913	3920	9288
1914	3740	8621
1915	4053	8189
1916	5707	7750
1917	6833	8713
1918	7151	8605
1919	8015	7466

(irrigation/exports in acre-feet)
(Add 17,500 acre-feet for annual export by Spring Valley to San Francisco)

The drought that was crippling both ACWD and the East Bay Water Company was also detrimentally affecting the Spring Valley Water Company’s obligation under the 1916 agreement to maintain well water in the Niles Cone at 1914 levels. Cyril Williams reported on September 7,



Representatives of East Bay Water Company are shown outside the firm’s Oakland headquarters. The company pumped water from wells in Alvarado, drawing down the Niles Cone, to sell to customers in the East Bay.

1918, that groundwater was already between six and one half and nine and one half feet below where it stood in 1914, and that Spring Valley was not providing the water necessary for recharge.²⁷ Spring Valley’s inability to provide Alameda Creek flows for recharge into the Niles Cone was not only due to the drought – the company’s situation had grown worse as a result of the partial collapse of the Calaveras Dam in March of 1918. Without the full storage capacity of Calaveras, Spring Valley was having difficulty meeting San Francisco’s needs, let alone providing additional releases down Alameda Creek to replenish the Niles Cone aquifers. Given these conditions, in early September 1918 the District directed George Clark to assess what legal options might be available to pursue.²⁸

At about the same time, the District moved against the East Bay Water Company and Alameda Sugar Company to halt any increased diversions from the Niles Cone to Oakland. By early January 1919, the District had served notice on both companies protesting the connection of East Bay Water’s pipeline to the sugar company’s wells.²⁹ When these warnings failed to stop the increased pumping, the ACWD Board on March 1, 1919, instructed Clark to sue East Bay Water to “determine the rights and protect the interests of the District in the underground water of the District.”³⁰

While things were going from bad to worse in their relations with East Bay Water and Spring Valley Water, and while Paul Bailey’s studies continued, a

new problem surfaced in 1919 involving the gravel companies that operated in the District. These companies had started to dispose of silt from their quarrying operations adjacent to Alameda Creek into the creek bed itself, and the sediment was slowing water percolation into the gravels of the Niles Cone. On August 2, 1919, the ACWD Board directed Clark “to notify the various companies to devise of some other way of disposing of the silt.”³¹

When the first request failed to produce any response, the District made a second request in late 1919, and asked Cyril Williams to discuss the problem with the Niles Sand and Gravel Company, threatening litigation if this effort was not successful. By early 1920, Williams reported that he had conferred with the various sand and gravel companies about the silt problem and that two of the first, California Building Materials and Canyon Gravel Company, had agreed to stop placing silt in the creek bed. When threatened with litigation again, Niles Sand and Gravel finally pledged to find another site to dispose of its silt as well.³²

Just as ACWD was dealing with the problems raised by the East Bay Water Company’s increased pumping at the Alvarado wellfield and with the quarry operators’ dumping of silt into Alameda Creek, Paul Bailey released his preliminary findings on the relationship between the flows in Alameda Creek and groundwater recharge rates in the Niles Cone. His “Engineers’ Report on Investigations on the Niles Cone, 1916-1920, State Water Commission of 1916” comprises nearly 200 pages of detailed measurements and technical assessments of stream flows and percolation into the Niles

The Bell Quarry was one of several operating in Washington Township in the early 1900s.





The Mayhew family posed in front of their orchards, which were part of Washington Township's economic base.

Water for Fruit and Crops

Washington Township contained 44,000 acres of land, the majority of which was used for orchards and farms. While the crops that were planted changed through the years, what never changed was the need for water to irrigate crops and orchards. Southern Alameda County and Santa Clara County had developed into powerhouse growing regions in the state, notable especially for their tree fruit. Southern Alameda County produced almonds, apples, apricots, berries, cherries, figs, peaches, pears, plums, prunes, and walnuts.



Cone by the Waters of Alameda Creek. In this regard, Bailey stated that his investigation “comprised two lines of endeavor:

“1. To directly measure the amount of water which percolates from the channel of Alameda Creek as this creek crosses the territory of the Alameda County Water District and to determine therefrom the manner of variation of the rate of percolation. [and]

“2. To determine what becomes of the water percolating.”³³

The ultimate question to be answered by Bailey was to determine what additional amount of water would have been added to the underground supply of the Niles Cone if the water stored in the reservoirs of the Spring Valley Water Company “had been allowed to flow across the Cone and mingle with the remaining natural flow of the stream in any particular season. In other words, how much water was kept out of the Cone as a result of this storage?”³⁴ Bailey found that the rate of flow varied in a very complex manner with the temperature, volume, and duration of flow. After completing an elaborate analysis of the data, Bailey next developed an empirical formula expressing this relationship. Measurements would be made to determine the amount of water required to be released to ACWD by maintaining a stream gauge on Alameda Creek and receiving reports from Spring Valley of the water levels in its reservoirs. From this data, a calculation could be made of the amount of water that would have reached the District had there been no dams and diversion works on the creek. The Bailey Formula could then be applied to determine how much additional water should be released from Spring Valley’s reservoirs or other sources, at a slower rate and over a longer period, to equal what would have percolated into the Niles Cone had these flood waters not been captured upstream in the watershed by Spring Valley.

Neither ACWD nor Spring Valley was happy with Bailey’s preliminary findings. Spring Valley retained noted water engineer Joseph B. Lippincott, who had helped build Los Angeles’s Owens Valley Aqueduct, to review Bailey’s work. While praising his comprehensive and thorough approach to water measurement of Alameda Creek, Lippincott was decidedly critical of Bailey’s formula for percolation, cautioning the State Water Commission that “Some of these theories are not justified, and may lead toward undue penalizing of either of the parties. . . . Mr. Bailey is not justified in abandoning his measurements in favor of his theory. It is extremely difficult if not impossible, to take into consideration **all** [emphasis in original] of the elements that enter into these percolation losses.” Detailing why Bailey’s theory was not a reliable model for percolation and losses in the Niles Cone, he ultimately concluded that the errors in the formula worked to the disadvantage of the Spring Valley Water Company, allowing too much water to potentially be released to ACWD.³⁵

On behalf of ACWD, Cyril Williams weighed in with additional problems with Bailey's opinion, believing that the Bailey Formula for percolation into Niles Cone actually would prove worse for ACWD than for Spring Valley. He stated on July 22, 1920, that the proposed percolation formula "was tenable although it showed a greater percentage of absorption than the gauging made under Mr. Bailey's supervision."³⁶ Although Williams stated that he needed additional time to evaluate the Bailey report more completely, the Board nevertheless decided unanimously that "the proper solution for the District involved a maintenance of the water level to conform to the 1914 level and that the means and expense for doing so should rest with the Spring Valley Water Company."³⁷ The board would later decide to make this their formal position before the State Water Commission.³⁸ This was probably a strategic mistake on the District's part, since it would be difficult, if not impossible, for the 1914 groundwater levels to be maintained with releases from Spring Valley without limitations on pumping of the groundwater as well, a position that Spring Valley would subsequently argue before the Commission.

Insisting on any level to be maintained in the groundwater basin as a basis for settlement was a losing proposition, as the ACWD Board discovered when the Commission met to adopt its final decision on December 21, 1920. The Commission set forth the conditions under which Spring Valley could divert waters of Alameda Creek. They were, first, that "the quantity

Transporting an East Bay Water Company pipe.



of percolation withheld by reason of such storage and additional diversion shall be ascertained by using Mr. Bailey's formula . . .” The Commission's decision also specified that a gauging station be maintained on Alameda Creek in Niles Canyon by the U.S. Geological Survey, which, in cooperation with the State Water Commission, would make the necessary measurements and calculations to determine the amount of water passing the station. Spring Valley was required to pay for all field and office work relating to these measurements, and the company was also directed to install and maintain gauging stations at any reservoirs built by the company in the Alameda Creek watershed, and to provide this information to the Geological Survey.

Accepting an argument by Spring Valley that its deliveries under the Bailey Formula should be reduced in proportion to the riparian lands and water rights it held with the Alameda County Water District, the Commission also ordered the company to release water in “such amounts that eighty-three and one half percent of the quantity of percolation withheld by storage and additional diversion in any season . . . will be absorbed by the gravels underlying the District.” With these declarations, the State Water Commission acted to adopt the Bailey Formula as a means of permitting the Spring Valley Water Company to construct additional storage and divert those waters to San Francisco while simultaneously protecting recharge flows to the Niles Cone.³⁹

While the State Water Commission's 1920 decision establishing the Bailey Formula for recharging the aquifers of Niles Cone was supposed to have brought an end to the “water wars” between Spring Valley and Alameda County Water District, it did not settle matters, at least from ACWD's perspective. Convinced that the Bailey Formula was inimical to the District's best interests, the ACWD Board continued to resist its implementation. In addition, many of the problems that confronted the District during its first six years of existence remained unresolved as well, including pumping at Alvarado by East Bay Water Company and silt discharges into Alameda Creek by quarry operators. New problems also arose as a result of increased pumping by the City of Hayward to the north of ACWD's service area, which further threatened the District's groundwater water supplies.

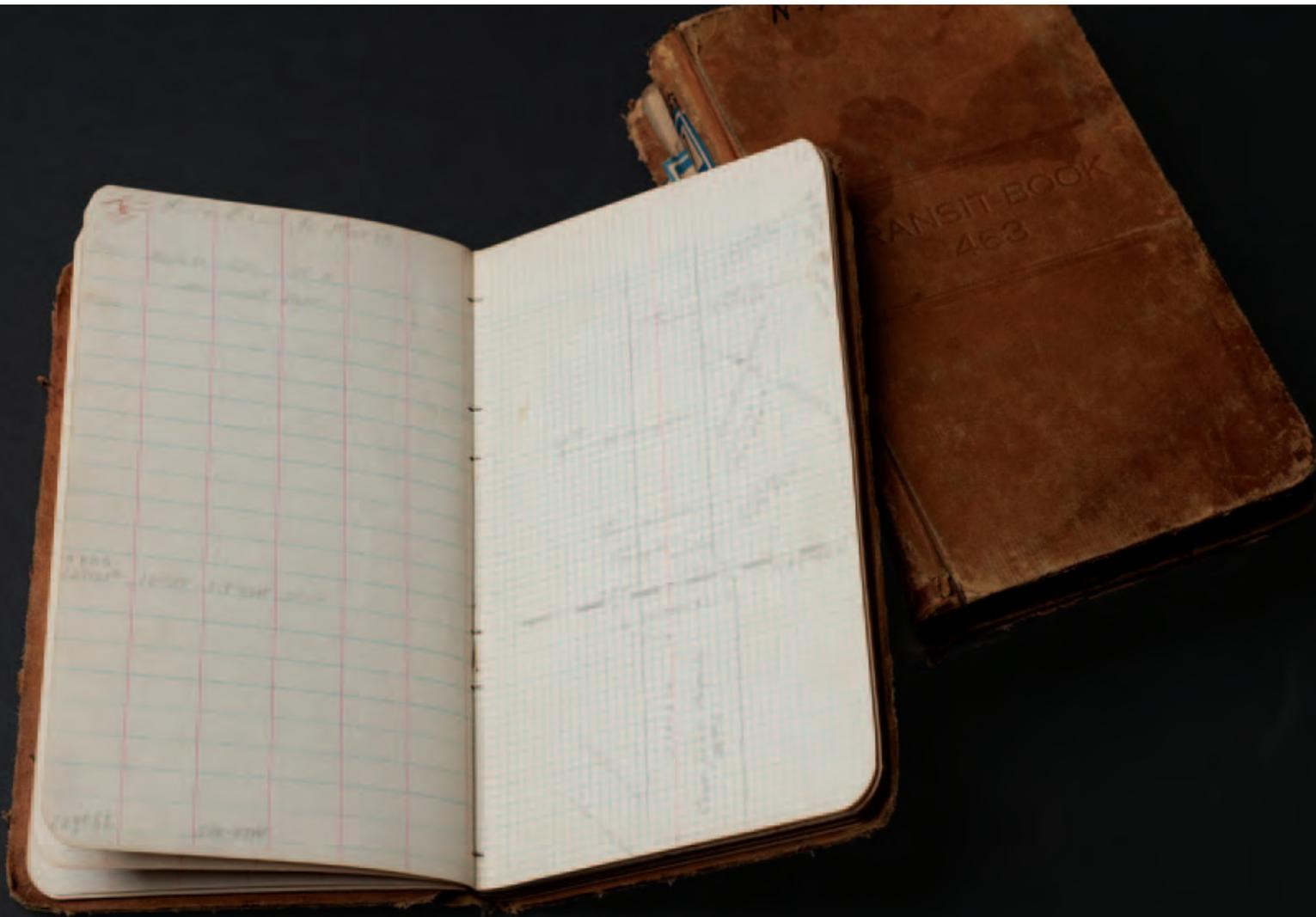
With respect to the Bailey Formula, the ACWD Board, within a month of the State Water Commission's adoption of its decision, directed that a notice be sent to the Board of Arbitration, Spring Valley Water Company, and the City and County of San Francisco (which was still trying to purchase Spring Valley) that the decision “cannot properly be accepted by the District or the landowners thereof.”⁴⁰ It was ACWD Attorney George Clark's position that the Water Commission's ruling was an “illegal one because of the deduction of 16½ percent of storage waters from the lands entitled to percolating

waters under the decision” and that it was unfair because it “did not allow the District a margin of safety and interfered with the natural rights of flow possessed by the landowners who had not disposed of their water rights.”⁴¹

While ACWD was still protesting the fairness of the Bailey Formula, water was being released by Spring Valley under two arrangements. One was based on the Bailey formula, while the second was designed to make up for water not delivered during the three-year period of the Bailey investigation from 1916-1919. It was agreed Spring Valley would take 21 million gallons per day from the Alameda Creek Watershed; Spring Valley would in turn release 900 million gallons to the District between June and September, provided that San Francisco’s needs permitted it. If it failed to release that amount, the State Water Commission would determine how much the District would receive, and might order a greater release of water to the District should that seem advisable.⁴²

ACWD engineer/general manager Cyril Williams kept meticulous records of surface flows and Niles Cone aquifer levels. He and staff monitored more than 600 wells in a study to determine the correlation between stream flows and changes in groundwater levels. Williams’ research was the basis of the District’s suit to stop construction of Calaveras Dam and resulted in a requirement that Spring Valley Water Company release impounded water back to Alameda Creek to recharge the Niles Cone.

The first release began on May 11, 1920. A month later Cyril Williams would write to George Clark that 600 million gallons had come down Alameda Creek. Water would be released by Spring Valley throughout the 1920s, even while the District continued to dispute the Bailey Formula. The water was captured by four gravel check dams that the District installed in



1919 across the creek to capture as much released water as possible, even before the arbitration agreement was finalized. Two more such dams were installed in May 1920.⁴³

In early 1922, Spring Valley filed a motion in court requesting that the 1915 lawsuit originally filed by ACWD against it be dismissed, since, from their viewpoint, the State Water Commission's 1920 arbitration settlement had effectively ended the dispute. The court subsequently approved the motion and dismissed the case. However, ACWD's Board appealed the decision in the hope that if the District won in a higher court, the judgment might pave the way for eventually overturning the Bailey Formula.⁴⁴ In addition, Board member Will Patterson and his brother also filed suit against Spring Valley with the objective of obtaining more water from Alameda Creek and blocking the use of Calaveras Reservoir by the company. The Pattersons claimed that because their lands were adjacent to two channels tributary to Alameda Creek, they were therefore entitled to receive the stream's natural flows. Accordingly, they very creatively argued that they were entitled to have the Niles Cone aquifers fully recharged without reference to the Bailey Formula or to storage by the Spring Valley Water Company.

As it turned out, neither case went well for either the District or the Pattersons. By 1924, the appeal of the dismissal of the 1915 lawsuit as a means to nullify the Bailey Formula had gone all the way to the California Supreme Court, which let the dismissal stand. In December 1925, the judge in the Pattersons' case ruled against them as well, finding that the Pattersons' lands were part of the Alameda County Water District and that the District's rights to water for percolation had been determined by the State Water Commission's 1920 arbitration decision. Individual landowners were thus not entitled to any waters other than those set forth in the arbitration settlement for the District as a whole. Accordingly, even though they continued to have significant doubts about the fairness of the Bailey formula, any channels of appeal were effectively foreclosed, and the District would be bound by the arbitration settlement for the foreseeable future.

The Spring Valley Water Company and the Bailey Formula aside, other serious dangers threatened the District's Niles Cone water supplies in the 1920s, including increased pumping at the Alvarado wells. By 1921, the City of Hayward, which also obtained its water supplies from wells at Alvarado, was attempting to increase its groundwater pumping. Pumping at Alvarado by the East Bay Water Company was again on the increase. Attorney George Clark had been previously authorized to file suit against the company in 1919. By June of 1922, he finally acted and initiated a lawsuit against East Bay Water Company on behalf of ACWD. The complaint charged that East Bay Water Company was taking groundwater from the Niles Cone to deliver it to lands outside of the Alameda Creek watershed,

asserting as well that the company planned to greatly increase its pumping, which would further damage ACWD water users. The District requested the Superior Court to enjoin East Bay Water from any pumping from the Niles Cone and to prohibit it from taking water out of the Alameda Creek Watershed area.⁴⁵

*The salt water was literally being pulled in from San Francisco Bay as a result of a reversal of the hydraulic gradient in the Niles Cone. Water pumped from wells in Alvarado and other parts of the District's service area was not being replaced with sufficient quantities of fresh water to keep salt water from flowing into the shallow Newark Aquifer; the salt water was then making its way into the deeper aquifers through uncapped or unplugged wells.*⁴⁶

The filing of the litigation against East Bay Water did nothing to stop its pumping at Alvarado. By October 1923, the effects of this pumping on the groundwater basin had grown so severe that salt water from San Francisco Bay began to be detected in farmers' wells in the Niles Cone. Even with the Bailey Formula releases throughout the early 1920s, an engineering report on October 6, 1923, presented this new and ominous development – salt water had turned up in the analysis of water from wells on the Patterson Ranch and other properties near San Francisco Bay.

The following spring the ACWD Board learned that the East Bay Water Company also planned to enlarge its pipeline to Oakland, allowing it to take even more water from Alvarado. The Board also discovered that the Spring Valley Water Company planned to construct a new pipeline to increase its diversions from Calaveras Dam. In response, the ACWD Board authorized George Clark “to take such action as may be deemed necessary to protect the rights of the people of the district against any increased diversion of water by the East Bay Water Company at Alvarado in this District,” and “the proposed additional diversion from Calaveras Dam.”⁴⁷

Concerns over East Bay Water Company's pumping escalated even further by December 1925. Residents of the Castro Valley had petitioned the California Railroad Commission to require East Bay Water to service that area as well. With the potential that the company might pump yet more groundwater at Alvarado to meet Castro Valley's demands, the ACWD Board directed Clark to “take such action in the matter of the said petition of the Castro Valley residents before the State Railroad Commission as they may deem necessary to protect the rights of the people of Alameda County Water District.”⁴⁸

By the mid-1920s ACWD's water supplies from both Alameda Creek and the Niles Cone groundwater basin were under attack on several fronts. From the District's viewpoint, Spring Valley Water Company had received more than its fair share of Alameda Creek waters through implementation of the Bailey Formula, which were further diminished by the requirement to reduce these releases by the amount of riparian lands held in the District by Spring Valley. Both Spring Valley and East Bay Water Companies were planning to build pipelines to take additional water to San Francisco and Oakland. Litigation against Spring Valley to overturn the Bailey Formula and to stop additional storage at Calaveras Reservoir had not gone well.

Increased groundwater pumping by the East Bay Water Company was further depleting the Niles Cone aquifers, and the prospect remained that pumping might increase to serve Castro Valley residents.

Evidence of increasing salinity in Niles Cone wells near San Francisco Bay highlighted the fact that recharge from Alameda Creek waters was insufficient to keep up with increasing demands for water both within the District and in Oakland and San Francisco. It was under these dire circumstances that the District began to actively explore measures to obtain additional water supplies.

The District pursued a variety of potential options in its effort to develop additional sources of supply. In early 1926, the Board tasked Cyril Williams to report back to it on the feasibility and cost of constructing additional reservoirs in the Alameda Creek watershed as a means of storing winter flows for later release to recharge the Niles Cone aquifers. Williams reported that nearly all of the storage sites on Alameda Creek itself were in the possession of Spring Valley Water Company except for two locations on Arroyo Valle and on San Antonio Creek, which were both tributaries of Alameda Creek. Williams chose the site on San Antonio Creek for further analysis, since it was closest to the ACWD service area. He advised that if constructed, the reservoir could provide seven million gallons of water per day, and that it could be built at a cost of approximately \$700,000. He urged the Board to seriously consider “the acquisition of the necessary rights and properties for the construction of the San Antonio development,” concluding that if the District determined to move ahead with the plan, he would contact

Fremont in 1925



the Spring Valley Water Company, which had previously studied the site's feasibility, to obtain as much information as possible.⁴⁹

While it considered new reservoirs as a potential method of increasing its water supplies, the District also explored ways to improve percolation into the Niles Cone aquifers. As early as 1919-20, the District had installed gravel check dams on Alameda Creek to impound winter flows and increase groundwater recharge. To further increase percolation capacity, the District looked to abandoned quarry pits adjacent to Alameda Creek, which could be filled with water diverted from the creek. As early as September 1921, a serious effort was begun to purchase the rights to such a pit. Two pits appeared suitable – one was the Overacker Pit, and the other a relatively new pit opened by the Western Pacific Railroad. When Western Pacific declined to turn over its pit to the District, negotiations centered on the Overacker Pit.⁵⁰ Negotiations over the Overacker Pit dragged on inconclusively for several years. Then in February 1926 it was reported that the Western Pacific Pit was available. Western Pacific agreed to sell the pit in early 1926, and the District laid plans to pump water out of Alameda Creek and into the pit during the rainy season.⁵¹ Desirable as the solution appeared, however, the deal was not consummated and it would not be until 1935 that the Western Pacific Pit was finally put to use. Cyril Williams also considered plowing Alameda Creek's bed to further stimulate percolation.⁵²

As San Francisco progressed in its construction of the Hetch Hetchy system, including a pipeline that would ultimately carry water supplies from Hetch Hetchy Valley to the Bay Area, it was discovered in March of 1924 that Spring Valley Water Company had begun diverting additional water from Alameda Creek through the newly constructed pipeline. The District's attorney was instructed to "draw up a form of protest for the individual landowners to sign."⁵³ Concerns persisted over the amount of percolation from the winter storms, with Cyril Williams reporting that the seasonal percolation was far less than expected, even though Spring Valley had agreed to release 878 million gallons, or 21 percent of the storage from Calaveras Reservoir, into Alameda Creek pursuant to the Bailey Formula.⁵⁴ By June, Board President Shinn and Director Trenouth had collected sufficient landowner signatures to file a protest with Spring Valley over the increased diversions. While the protest warned the City of San Francisco against "any interference with or diversion of the natural supply of the waters of Alameda Creek," the City's attorney's disclaimed any responsibility for the diversion, "inasmuch as the City simply rented certain structures to the Spring Valley Water Company."⁵⁵

Unable to stop the increased diversions through the Hetch Hetchy pipeline, and with growing concerns that overdraft conditions were increasing the salinity in wells bordering San Francisco Bay, the District next attempted to

augment its supplies by requesting that the Spring Valley Water Company implement the terms laid out in a June 1920 agreement. This agreement provided that if Spring Valley could meet San Francisco's water needs in any given year from water stored at Calaveras Reservoir and other sources, it would release additional water over and above the Bailey Formula requirements to recharge the Niles Cone aquifers.⁵⁶ This approach apparently worked, and by May 1927, Spring Valley had agreed to release over a billion gallons; two months later, the company had released 2 billion gallons, an amount believed to be sufficient to meet the District's irrigation needs until the rainy season began in the late fall.⁵⁷

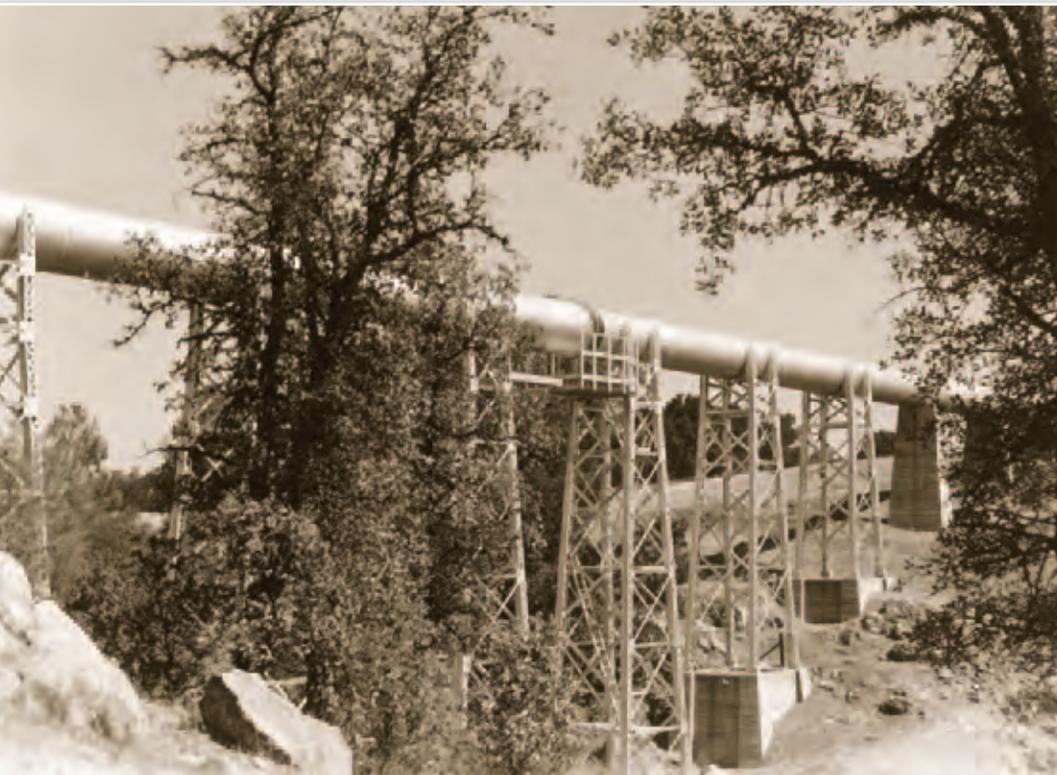
While Spring Valley provided some level of relief for the District's overdraft situation, even while it continued to export Alameda Creek supplies to San Francisco, the lawsuit against East Bay Water Company languished since being filed in 1922. Attorney George Clark advised the Board in December 1924 that the suit could hardly be pressed "so long as East Bay was not pumping more than before and was claiming that they were willing to have it determined that they have no right to diversion beyond the amount per season that they have pumped."⁵⁸

Hetch Hetchy construction, 1924



EBMUD Ends East Bay Water Company Issue

By July 1922, however, another factor emerged in the District's battle with East Bay Water. At that time, the ACWD Board adopted a resolution endorsing the creation of the East Bay Municipal Utilities District (later known as East Bay Municipal Utility District, EBMUD), which was proposed to encompass the original nine cities in northern Alameda County that made up the 1914 municipal water district proposal, but without the inclusion of the Alvarado wellfield. Enabling legislation providing for the formation of municipal utility districts was passed by the California Legislature in 1921. East Bay residents subsequently voted to create the new district at the November 1923 election by a two to one margin.⁵⁹



The Mokelumne Aqueduct brought water from the Sierra to the East Bay, ultimately reducing the demands on Washington Township water. Pictured above is the first Mokelumne Aqueduct crossing at Finnerty Gulch.

Among the first priorities of the new EBMUD Board and staff was to seek to purchase East Bay Water Company's system and to seek a new water supply outside of the immediate Bay Area. Finalists for this supplemental water included the Eel, Sacramento, Tuolumne, and Mokelumne Rivers. The Mokelumne was the "winner" out of this group, representing the least costly alternative.⁶⁰ In 1924, \$34 million had been authorized by the voters to construct the Mokelumne system, and EBMUD staff also opened negotiations to discuss purchasing the East Bay

Water Company's system. While these negotiations were being held, East Bay Water Company actually increased its diversions from the Alvarado wellfield to almost 8.2 million gallons per day during calendar year 1926. This resulted in further concerns about salt water intrusion.⁶¹ The company subsequently assured the District that it would reduce its pumping to 4.5 million gallons per day for the next four to five months, while George Clark continued to advise the ACWD Board against forcing the matter to trial.⁶²

Expecting that a speedy completion of EBMUD's Mokelumne project would curtail pumping at Alvarado, the ACWD Board further concluded that their district might be able to tap into the EBMUD system for additional water supplies. A joint meeting of the ACWD and EBMUD Boards of Directors was held on January 14, 1927, to discuss obtaining water from EBMUD's

Mokelumne system. At that time, Christian Runckel stated that:

“Through the efforts of the Alameda County Water District, the East Bay cities had been enabled to tide over a series of very critical years and that now the situation was so threatening that if possible water should be pumped from the San Joaquin this year in order that the pumping at Alvarado might be stopped this year or at least greatly reduced.”⁶³

The meeting ended “in a very friendly spirit.” However, no further discussions regarding tapping into the Mokelumne system appear to have been held, and pumping at Alvarado would continue unabated for the next two and one-half years. It would only stop after EBMUD was finally able to purchase the East Bay Water Company in December 1928 and complete the Mokelumne water supply project in July 1929.

Once the Mokelumne supply was flowing into the EBMUD service area, EBMUD no longer needed the Alvarado wellfield. Following negotiations with EBMUD, ACWD bought the Alvarado wells and water rights for \$290,000, to be paid in several installments with a final lump sum due in August 1930. To pay for the wells and rights, the District called for a bond election to be held on March 25, 1930, to raise \$250,000 of the purchase amount, with the balance to be raised from the sale of land acquired with the Alvarado wells. The bond passed by a vote of 843 to 44, and EBMUD transferred title to the Alvarado wells and water rights to ACWD in June 1930.⁶⁴

San Francisco Prevails Over Spring Valley Water Company

Just a few months prior to the purchase of the Alvarado wellfield, a half-century of effort by San Francisco finally culminated in the purchase of the Spring Valley Water Company by San Francisco at a cost of nearly \$40 million, creating the San Francisco Water Department under the Board of Public Works. At the time of the takeover, Spring Valley’s assets in the Alameda Creek watershed included Calaveras Dam and Reservoir, Sunol filter Galleries, Pleasanton Wellfields in the Sunol Valley, and the Niles Canyon Aqueduct. Spring Valley also turned over to San Francisco its riparian water rights and rights-of-way needed to divert and use their water supplies and facilities.⁶⁵ Although San Francisco would continue to rely upon the Alameda County watershed system for another four years until completion of the Hetch Hetchy system, the era of contentious litigation by and against Spring Valley Water Company had finally come to a close.

Summary: Securing Water Rights – 1914-1930

By 1930, the District had survived the numerous challenges to its existence, and its ability to tap new sources and improve existing ones gave the

District considerably greater flexibility than it had at the start of the 1920s. Alameda Creek water releases by the Spring Valley Water Company (and San Francisco by 1930) would bring water more reliably to well pumpers in the Niles Cone. Improvements in groundwater percolation allowed these releases to recharge the aquifers more easily, and the District had begun to look at ways to expand its percolation capability through diversions from Alameda Creek to abandoned quarry pits.

The acquisition of the Alvarado wells and water rights represented a major step forward in the District's ability to protect and enhance its water supplies for the residents of the District. However, the overdraft conditions created by the combination of increased exports by Spring Valley and East Bay Water Companies, combined with increased demands within the District, resulted in the intrusion of salt water into what had previously been fresh water aquifers in the Niles Cone. This would be a problem that would plague the District for many years to come, and directly result in a quest for additional water supplies to meet growing demands and reverse the overdraft conditions.

San Francisco Mayor James "Sunny Jim" Rolph, Jr. presided over the 1930 celebration commemorating San Francisco's purchase of the extensive Spring Valley Water Company system, marking a new era of water management affecting Washington Township and the entire Bay Area.

Most important, the purchase of the Alvarado system would move the District, grudgingly at first, into providing water distribution services to the residents of Washington Township, in addition to its charge to protect



and conserve the groundwater basin. This would open the way for the next chapter in the District’s history, as the District would begin to cope with the challenges brought on by growth, as the landscape of Washington Township transformed from a thriving agricultural region to a rapidly expanding urban center.

Chapter 2 Endnotes

- ¹ “Alameda County Water District is not Wanted,” *Township Register*, April 29, 1915.
- ² Minutes, ACWD Board of Directors, Volume 1, October 17, 1914, pp. 20-22.
- ³ Minutes, ACWD Board of Directors, Volume 1, March 13, 1915, pp. 40-43.
- ⁴ San Francisco Water and Power, *A History of the Municipal Water Department and Hetch Hetchy System* (2005), p. 13.
- ⁵ “Niles to Oppose Calaveras Dam,” *Oakland Tribune*, March 4, 1915.
- ⁶ Babel, p. 80.
- ⁷ Complaint, *ACWD v. Spring Valley Water Company*, in file of S.P. Eastman: Water Districts—Pleasanton, Niles, Alameda, 1912-1915, in carton 9, folder 33, Spring Valley Water Company records, (Bancroft Library, University of California at Berkeley.)
- ⁸ S.P. Eastman files (footnote 7), Petition to Alameda County Board of Supervisors, August 7, 1915.
- ⁹ Minutes of ACWD Board of Directors, Volume 1, August 21, 1915, p. 63.
- ¹⁰ Answer of Defendant, Spring Valley Water Company, September 25, 1915, ACWD historical records, box 4003, file no. 14.
- ¹¹ “Demurrer is Knocked Out,” *The Washington Press*, May 23, 1916.
- ¹² Minutes, ACWD Board of Directors, Volume 1, p. 97, and pp. 100-109 (containing the agreement in its entirety).
- ¹³ “Water Commission Act,” *The Washington Press*, October 10, 1914.
- ¹⁴ “Directors Upheld,” *The Washington Press*, September 9, 1916.
- ¹⁵ Minutes, ACWD Board of Directors, Volume 1, pp. 100-109.
- ¹⁶ Paul Bailey, “Engineer’s Report on Alameda Creek Investigations (Progress Report No. 1), October 1916, ACWD historical records, box 4004, file no. 1.
- ¹⁷ Caswell, Patterson Oral History, pp. 9-10.
- ¹⁸ Minutes, ACWD Board of Directors, Volume 1, December 21, 1915, p. 81.
- ¹⁹ Minutes, ACWD Board of Directors, Volume 1, September 16, 1915, p. 112.
- ²⁰ Minutes, ACWD Board of Directors, Volume 1, September 16, 1915, p. 112.
- ²¹ Minutes, ACWD Board of Directors, Volume 1, November 3, 1917, p. 134.
- ²² Minutes, ACWD Board of Directors, Volume 1, December 1, 1917, p. 137.
- ²³ Minutes, ACWD Board of Directors, Volume 1, June 1, 1918, pp. 154-156.
- ²⁴ Minutes, ACWD Board of Directors, Volume 1, June 1, 1918, pp. 154-155.
- ²⁵ Minutes, ACWD Board of Directors, Volume 1, June 1, 1918, pp. 154-155.
- ²⁶ Paul Bailey, “Engineer’s Report on Pumping and Draught and Irrigation from the Underground Waters of the Alameda County Water District,” (consisting of 63 pages, 6 tables, map and photographs), September 1919, ACWD historical records, box 4004, file no. 2.
- ²⁷ Minutes, ACWD Board of Directors, Volume 1, September 7, 1918, p. 166.
- ²⁸ Minutes, ACWD Board of Directors, Volume 1, June 1, 1919, p. 166.
- ²⁹ Minutes, ACWD Board of Directors, Volume 1, January 4, 1919, pp. 180-181.
- ³⁰ Minutes, ACWD Board of Directors, Volume 1, March 1, 1919, p. 185.
- ³¹ Minutes, ACWD Board of Directors, Volume 1, August 2, 1919, p. 200.
- ³² Minutes, ACWD Board of Directors, Volume 1, February 7, 1920, p. 224.
- ³³ Paul Bailey, “Engineer’s Report on Investigations on the Niles Cone, 1916-1920, State Water Commission of 1916,” (State Water Commission, May, 1920), pp. 3-4, ACWD historical records, box 4004, folder no. 1.
- ³⁴ G.A. Elliott, Chief Engineer of SVWC, dated August 18, 1920, quoted in Charles H. West, “Groundwater Resources of the Niles Cone, Alameda County, California,” (Federal Land Bank of Berkeley, November, 1937), Appendix 2, p. 2.
- ³⁵ Joseph B. Lippincott, letter to Commissioners Chandler, Johnstone and Martin, July 3, 1920, (Joseph B. Lippincott Papers, Water Resources Center Archives, University of California at Berkeley).
- ³⁶ Minutes, ACWD Board of Directors, Volume 1, July 22, 1920, p. 251.
- ³⁷ Minutes, ACWD Board of Directors, Volume 1, July 22, 1920, p. 252.
- ³⁸ Minutes, ACWD Board of Directors, Volume 1, September 11, 1914, p. 258.
- ³⁹ California State Water Commission, “Niles Cone, Decision of W.A. Johnstone, Irving Martin, A.E. Chandler, in the matter of Alameda County Water District vs. Spring Valley Water Company,” December 21, 1920,” ACWD historical records, box 4004.
- ⁴⁰ Minutes, ACWD Board of Directors, Volume 1, February 5, 1921, pp. 272-274.
- ⁴¹ Minutes, ACWD Board of Directors, Volume 1, February 5, 1921, pp. 272-274.
- ⁴² Letter from Spring Valley Water Co. Vice President and General Manager Eastman to J.C. Shinn, June 4, 1920, George Clark files, ACWD historical records, box 4003.
- ⁴³ Minutes, ACWD Board of Directors, Volume 1, September 6, 1919, p. 203; November 1, 1919, pp 213-219; and May 1, 1920, pp. 231-235.
- ⁴⁴ Minutes, ACWD Board of Directors, Volume 2, January 21, 1921, pp. 22-23.
- ⁴⁵ Complaint, *Alameda County Water District v. East Bay Water Company*, June 30, 1922, ACWD historical records, box 4003, file no. 6.
- ⁴⁶ Minutes, ACWD Board of Directors, Volume 2, October 6, 1923, p. 101.
- ⁴⁷ Minutes, ACWD Board of Directors, Volume 2, May 2, 1924, p. 124.
- ⁴⁸ Minutes, ACWD Board of Directors, Volume 2, December 5, 1925, p. 193.
- ⁴⁹ Report from Cyril Williams, Jr. to ACWD Board of Directors, February 5, 1926, ACWD historical records, box 4003.
- ⁵⁰ Minutes, ACWD Board of Directors, Volume 2, September 3, 1921, p. 10.
- ⁵¹ Minutes, ACWD Board of Directors, Volume 2, January 8, 1927, p. 241.
- ⁵² Minutes, ACWD Board of Directors, Volume 2, October 3, 1925, p. 187.
- ⁵³ Minutes, ACWD Board of Directors, Volume 2, March 7, 1926, p. 162.
- ⁵⁴ Minutes, ACWD Board of Directors, Volume 2, May 2, 1935, p. 167.
- ⁵⁵ Minutes, ACWD Board of Directors, Volume 2, September 5, 1925, p. 183.
- ⁵⁶ Minutes, ACWD Board of Directors, Volume 1, June 12, 1920; Minutes, ACWD Board of Directors, Volume 2, June 5, 1926, p. 220.
- ⁵⁷ Minutes, ACWD Board of Directors, Volume 2, August 6, 1927, p. 267.
- ⁵⁸ Minutes, ACWD Board of Directors, Volume 2, December 20, 1924, p. 149.
- ⁵⁹ James Martin, “History of EBMUD,” American Society of Civil Engineers, San Francisco Chapter, <http://www.asce-sf.org>.
- ⁶⁰ Martin, “History of EBMUD.”
- ⁶¹ Minutes, ACWD Board of Directors, Volume 2, October 1, 1927, p. 272.
- ⁶² Minutes, ACWD Board of Directors, Volume 2, November 15, 1927, p. 276.
- ⁶³ Minutes, ACWD Board of Directors, Volume 2, January 14, 1927, p. 244.
- ⁶⁴ Minutes, ACWD Board of Directors, Volume 2, March 31, 1930, p. 406.
- ⁶⁵ San Francisco Water and Power, *A History of the Municipal Water Department and Hetch Hetchy System* (2005), p. 14.



Water historically had been abundant in Washington Township and supported a thriving agricultural industry. But drought put strains on the District's water supplies and created conflicts among users between the 1930s and 1950s as the area was changing.

Chapter 3 • 1930 to 1950: Distribution and Drought

On May 27, 1930, the *Oakland Tribune* declared “Battle Won for Alameda Creek Water” as it reported ACWD’s purchase of the Alvarado wells and water rights. The article noted, “Seventeen years of work by landowners in the southern areas of the county . . . have been crowned with success in the acquisition of the Alameda Creek water rights and Alvarado pumping station of the East Bay Municipal Utility District.” This purchase would finally give the District “control of a huge portion of the flood waters of Alameda Creek as a source of supply for the 54,000-acre public utility district.”¹

While the purchase of the Alvarado wells was certainly good news, it was tempered by the onset of the severest drought in state history. The drought’s effect over the entire state lasted from 1929 to 1934, although it lingered in some parts of California from 1928 to 1937, and resulted in the largest deficiency in runoff of any drought the state had yet experienced. The stream flow record subsequently reconstructed from tree-ring data indicates that the drought was unequaled for the entire period from 1560 to 1980, indicating a possible recurrence interval of more than 400 years.² While the release of stored water by Spring Valley Water Company (and by San Francisco after 1930) pursuant to the Bailey formula might be helpful, improved percolation into the groundwater basin and the purchase of the Alvarado wells could not offset the severity of the drought’s impact on ACWD’s water supplies. The situation was summarized by Chris Runckel in a May 2, 1929, article in the *Township Register*.

“Another dry winter and the absence of floods in Alameda Creek has [sic] left the District in the worst situation in its history. The underground water levels are the lowest they ever have been. The salt from the Bay has worked into the upper gravel area along the bay shore [sic] to a greater extent than ever before. A large part of the land in that area will be compelled to abandon irrigation this year because the water in the upper gravel beds is too salty.”³

As the Great Depression’s effects rocked the nation, California’s drought situation further degenerated over the next two years. San Francisco’s Hetch Hetchy pipeline was not yet complete. To meet demands, the city was forced to continue to rely upon the Spring Valley Water Company’s system. And Spring Valley was quickly proving itself inadequate to meet San Francisco’s growing needs for water. As a result, San Francisco proposed to withhold water due to the District under the Bailey Formula. San Francisco city officials offered to pay \$18,240 “as partial compensation

“The Mokelumne water supply for the East Bay cities and the Hetch Hetchy supply for San Francisco have removed the danger of devastation by diversion of the natural water supply of the District. We feel that the District faces one of the most promising futures of any water district in California.”

– CHRISTIAN RUNCKEL, 1932

for the water so retained” and to deliver twice the amount retained once the Hetch Hetchy system was operational. Washington Township property owners subsequently appeared at the April 25, 1931, ACWD Board meeting to demand “the release of the water from Calaveras Dam as usual,” since their wells were “almost dry.” The Board rejected San Francisco’s proposal.⁴

While San Francisco and ACWD struggled over the availability of water supplies from Alameda Creek, the District’s Board of Directors also took the first steps toward developing a water retail distribution system. Historically, water distribution in Washington Township had been provided by a patchwork of small, private water companies, some serving as few as a dozen customers with piping and wells that were not interconnected with one another.

According to Cyril Williams, the distribution system facilities in Newark and Alvarado were not in good condition. The main water pipe was old and in danger of bursting; maintenance costs were high; and extra help and equipment would be needed to improve the system.⁶ Nevertheless, the Board went ahead with the purchase, considering the acquisition of the water rights and keeping 8 million gallons of water per day from leaving the District to be of paramount importance.



Will and Donald Patterson, 1907

“We were forced into the water distribution business.”

The District’s entry into the water distribution arena began haltingly at first, when the District inherited the distribution systems of Newark and Alvarado as a result of the purchase of the Alvarado pumping plant. Initially, the Board was not favorably inclined toward moving into retail water distribution, and an effort was made to get Oakland to keep these systems. “They were a losing proposition,” according to Will Patterson, “and we didn’t want to get drawn into the water distribution problem in this area, because we represented such a large area compared to these two [Newark and Alvarado] local distribution systems that were not paying costs. We were forced into the water distribution business, and that is what has developed into this present system.”⁵

An opportunity to sell the distribution system presented itself just after the vote on the bond election to purchase the Alvarado system when a representative of the California Utilities Company appeared at the May 3, 1930, Board meeting to inquire if any or all of the distribution system would be sold. The Board took no action at that time, preferring to wait until after the bonds had been sold.

In spite of any potential sale opportunity, the District was soon immersed in making necessary upgrades to the distribution system, including installing a pumping system, an elevated tank and a new chlorination system to better serve its new customers in Newark and Alvarado, as well as adjusting the customers' water rates to help pay for these upgrades. The Alvarado plant purchased from EBMUD was a steam plant with two large pumps, which were old and much larger than required to meet the much lower demands of the small distribution systems in Newark and Alvarado.

The plant also served territory north of Alvarado, including areas as far north as San Lorenzo and Eden Township, through a 30-inch main that the District inherited from East Bay Water Company. This portion of the District's distribution system responsibilities was subsequently taken over by the City of Hayward by an agreement reached between ACWD and Hayward in April 1933.⁷

A year after purchase of the distribution system, the Board had another opportunity to sell it to a group of investors led by Mrs. J.H. Whipple, which offered ACWD \$60,000 for the system with the goal of bringing about "a unified system for the entire District that would more efficiently serve the people."⁸ After considerable discussion, the Board finally resolved that "we do not consider it desirable to sell the distribution systems of the district."⁹ ACWD was in the distribution system business to stay from this point forward.

Throughout the 1930s the distribution system would grow both through requests for additional service and through the purchase of private water systems. Chris Runckel actively supported the extension of the municipal distribution system in *The Washington Press*, contending that expansion into a larger, integrated system "for all towns will surely aid in development of the District."¹⁰ The District gradually began to extend the municipal distribution system, just as Runckel had advocated. In February 1931 the District began service to twenty-four new customers in Newark who were previously served by the Moses Water Company. The cost for this expansion was \$1,200, with \$345 of this amount recovered by connection charges paid by the new customers.¹¹

By June 1930, H.G. Mohr became the first developer to request service to a new subdivision. The Board advised him that "if he were willing to



Alvarado Pumping Station

People's Water Company created the pumping station at Alvarado, then sold it to East Bay Water Company in the midst of negotiations with ACWD to purchase the plant. East Bay Water Company later sold it to East Bay Municipal Utility District, and ACWD ultimately was able to purchase the plant – along with the Alvarado wells – in 1930.

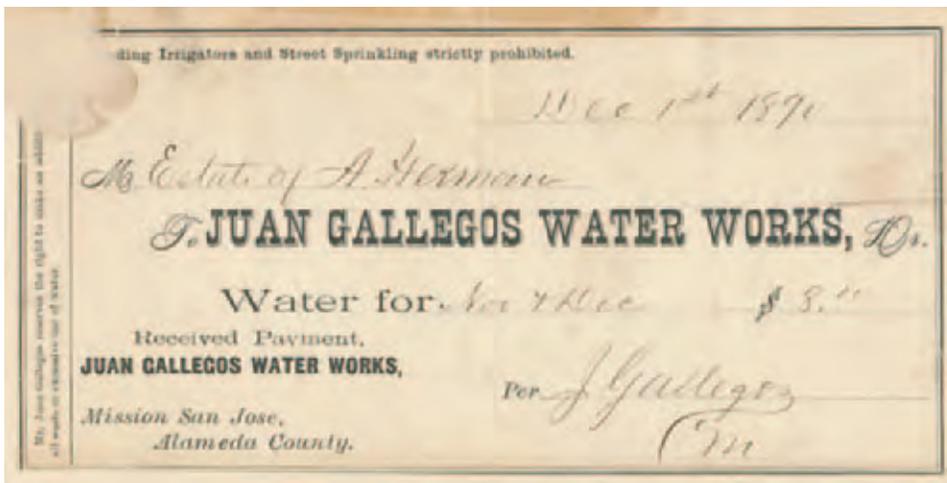
advance the necessary capital the District would consider taking over the proposed system.”¹² Similarly, the Alvarado Fire District offered to join in financing another pump to furnish additional fire protection, and the Board directed its engineer to install a four-inch main in response to complaints from the Newark Chamber of Commerce about inadequate water pressure.¹³ The District added new water mains, replaced old mains with larger ones, purchased additional fire hydrants for the system, and leased private wells to provide water to meet customer demands.¹⁴ Even with these capital improvements, for the 1933-34 fiscal year, net income from the distribution system was reported at \$4,840, before depreciation and interest deductions, and receipts from water sales were grossing almost \$10,000 per year.¹⁵

Other private companies providing distribution system services within the District soon began to inquire about the possibility of being purchased by the District. Subsequently, the District purchased the Irvington Water System in 1938 and the Centerville Water Company in 1939. Additional acquisitions of small systems would continue well into the 1940s.

An 1890 receipt for two months of water service from the Gallegos Water Works, which operated in the Mission San Jose area. ACWD purchased the first segment of their system in 1940.

In January 1939, the Board authorized Directors Patterson and Grimmer to investigate purchasing the Gallegos system that operated in the Mission San Jose area. Petitions for annexation of Mission San Jose to the District were presented a few months later by Matt Whitfield, Sr. and Thomas Witherly,

who also offered a reservoir site on his property to the District. After some difficult negotiations with the owners of the Gallegos system, the first of two Mission San Jose annexations was completed on April 6, 1940, and the distribution system continued to expand into that area.¹⁶ It appears that the doubts of the Board, especially by Directors



Shinn and Patterson, regarding the wisdom of this course had been finally put to rest. Looking back years later, Will Patterson had to admit that this action, which he initially opposed, “has become a major influence in the development of our area.”¹⁷

As new territory was added to the municipal distribution system, Congressman Albert E. Carter in 1938 facilitated a request by the District for \$53,216 from the Works Progress Administration (W.P.A.) to build a new

30-inch pipeline to the Western Pacific recharge pit and to construct a 100,000-gallon reservoir at Mission San Jose.¹⁸ To supply the new reservoir, ACWD negotiated an agreement in early 1939 to purchase water from San Francisco at a cost of \$6.00 per million gallons.¹⁹ Another W.P.A. funded project in early 1937 allowed the District to begin extending water mains from Centerville to Alvarado and Newark. The W.P.A. funded 10 percent of the pipeline costs and provided all of the labor for the project. At about the same time, the *Township Register* reported that work had also begun on a new pipeline to bring 260,000 gallons of water per day to landowners in Niles and Centerville.²⁰ Taken together, these projects allowed the District to enlarge its municipal and domestic water service by integrating mains at Alvarado, Niles, Centerville, Newark, Mission San Jose, and Irvington.²¹ The *Township Register* enthusiastically observed, “When mains are completed between Mission San Jose and Irvington, expected within the next two or three weeks, the circle of the township will be finished and a domestic supply of water will be assured for this district for all time.”²²

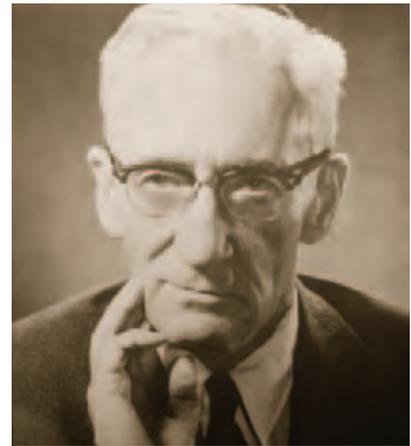
Just after the acquisition of the Alvarado pumping plant, the first change to the makeup of the Board of Directors occurred, sixteen years after its original formation. The death of Vice-President E.H. Stevenson was reported at the November 1, 1930, Board meeting. George P. Lowrie was appointed to fill the vacancy created by Stevenson’s death. The next change came in March 1932, when J.C. Shinn resigned the Board Presidency, pleading age and the state of his health, although he remained on the Board. Will Patterson was elected in his place, and William Trenouth was elected Vice-President. Less than eight months later, however, Trenouth died, and the Board appointed local physician Dr. E.M. Grimmer to succeed him. With his medical background, Dr. Grimmer would soon assume responsibility for oversight of water quality testing and public health issues at the District.

The first major changes in staff since the District’s formation were also to transpire in early 1933. The Engineering Department under Cyril Williams had been under criticism by both the community and by the Board for some time. This may have been primarily because of one of Williams’ subordinates, a hydrographer named Nunes, who apparently had incurred the ire of several Board members. Things came to a head at the February 1933 Board meeting, when a motion was made to abolish the Engineering Department. Although the motion was subsequently withdrawn, the handwriting was on the wall, and Cyril Williams was removed from the General Manager/Engineer position the following month, ostensibly for failing for several weeks to detect and repair a leak on the 30-inch line running to San Lorenzo Creek.²³

Williams was replaced by E.A. Richmond, who was appointed General Manager in March 1933, while Williams was retained as an engineering



George P. Lowrie
ACWD Director 1930 – 1938



Dr. E.M. Grimmer
ACWD Director 1932 – 1956
With a medical background, Dr. Grimmer assumed responsibility for oversight of water quality testing and public health issues at the District.



E.A. Richmond
General Manager 1933 – 1953
A lifelong Centerville resident, Richmond had worked for the Oakland Water Company, Contra Costa Water Company, Peoples Water Company, and the East Bay Municipal Utility District before joining ACWD.

consultant to the District until the following July. Hired by the Oakland Water Company in 1906, Richmond had worked successively for the Contra Costa Water Company, Peoples Water Company, and by 1930, for the East Bay Municipal Utility District.²⁴ He'd been in charge of the Alvarado pumping plant for several years. A lifelong Centerville resident, his brother Ralph Richmond had served two terms as the area's representative on the Alameda County Board of Supervisors (from 1925-33), and his father had served as Washington Township Justice of the Peace and Alvarado postmaster since 1877.²⁵ Although not an engineer by training, he was very knowledgeable of the newly acquired distribution system, and was described by Patterson as "very efficient as a practical man [who] was a great asset to the Water District."²⁶

Richmond's duties were varied. In March 1934 the Board minutes note that Richmond was "acting as Collector, Meter Reader, and General Manager."²⁷

It appears that his function was to primarily administer the day-to-day operations of the District. Major negotiations with other agencies and the development of agreements and policies continued to be carried out by Chris Runckel, acting as Secretary/Auditor, and by the Board members themselves.

During the early 1930s farmers struggled with the impacts of drastically lower prices for their crops as a result of the nationwide Great Depression. In 1931, the Board temporarily reduced the salaries of all appointed officers and employees by 20 percent. The District budget was also drastically reduced in fiscal year 1933-34 "because of economic distress on the District's farmers."²⁸ While

the farmers struggled, the spring of 1932 saw a definite rise in the ground-water levels in the District: "Since the cessation of pumping for irrigation and for use of the Sugar Company at Alvarado a very substantial recovery has occurred. The rise at Alvarado including the recovery has amounted to more than 25 feet."²⁹

These temporarily improved water conditions, and the depressed condition of agriculture in the state, led the Board of Directors to actively oppose the proposed State Water Plan, which was being considered by a special session of the state Legislature in May 1932. This plan had been developed between 1920 and 1932 through fourteen detailed reports on water flow, drought conditions, flood control, and irrigation issues in California. By 1932, State Engineer Edward Hyatt would use these reports to create the California State Water Plan (Plan). In 1933, the California Legislature authorized what would ultimately become the federal Central Valley Project when it became apparent, by the mid-1930s, that California would be unable to finance a project of such immense proportions.



Dust Bowl refugees camped in area orchards while looking for work picking fruit during the Depression.

The ACWD Board adopted an “oppose” position against the Plan because of “recent improvement in the water situation in the State,” the “overproduction of agricultural products,” and the seeming “necessity for curtailment of agricultural areas instead of the development of new irrigated areas,” as well as the “current excessive taxation on agricultural lands.”³⁰ According to Will Patterson, the underlying concern of the Board with the proposed Plan was that, “as originally advanced [the plan] was to carry the water down the San Joaquin Valley, which of course would have been of no benefit to us. We felt that if the State was going to have a Water Development Plan, the areas of the state that were in need of water should be considered. We felt that it [sic] was being monopolized by the San Joaquin Valley.”³¹

The optimism expressed by the Board regarding improved groundwater levels was echoed by Chris Runckel in a July 1932 letter to a potential bond buyer, which provides an informative account of the District’s activities and growth to that time. Runckel stated that the District had an assessed value of \$9 million and a population of 10,000, and that the tax rate to pay the current expenses was \$0.24 per \$100 of assessed valuation, which would be reduced to \$0.20 in the coming year. The District’s only bonded indebtedness consisted of the \$250,000 originally issued to pay for the purchase of the Alvarado pumping plant and water rights. Runckel also informed the potential buyer that the District “was organized primarily to protect and conserve the water rights of the District. These rights consist of the District’s share of the



flood waters of the 600 square miles of watershed in Alameda Creek and the possession and control of the water stored in the underlying gravel beds of the District which is fed into these gravel beds from Alameda Creek.” These “ends have been achieved” since the District was originally organized, pointing to the 1920 arbitration agreement which required San Francisco to release stored flood waters to the District. The subsequent purchase of the “pumping rights” of the East Bay Municipal Utility District at Alvarado, had “stopped entirely the diversion of this underground supply of water to the East Bay Cities . . . [and] insures the future of the District.”

Always the booster, Runckel advised that the combination of fertile soil, good climate, and now the guarantee of ample water for irrigation “single

Despite the prevalence of tractors in agriculture the 1930s, some farmers in Washington Township continued to use horse teams for specific jobs, such as cultivating corn.

out this section as one of the most promising in the world when agriculture is again restored to normal conditions.” He ended his letter with the following observation:

“On the whole there are just two things upon which the District’s security rests. The first is the annual rainfall and run off from the watershed. The other is the ability of the American people to restore farming to its rightful place in this nation. The Mokelumne water supply for the East Bay cities and the Hetch Hetchy supply for San Francisco have removed the danger of devastation by diversion of the natural water supply of the District. We feel that this District faces one of the most promising futures of any water district in California.”³²

As the prolonged drought continued on into the mid-1930s, however, these optimistic assessments would be severely tested, and the District would soon resume its search to find new sources of water. The winter of 1933-34 was dry, and the end of March found the District once again with an urgent need to replenish a rapidly falling groundwater basin. At their March 20, 1934, meeting, the Board discussed the need for additional releases of water from Calaveras Reservoir, water that exceeded the minimum amount required to be delivered by San Francisco under the Bailey Formula. The

The spillway overflow at Crystal Springs Dam, 1940. Hetch Hetchy water flowed through pipes from the Sierra through Washington Township, across the Bay, then to Crystal Springs Reservoir, and ultimately to San Francisco.



Board discussed the current condition of the groundwater basin, concluding that “the rainfall for the past winter has been exceedingly limited and the necessity for replenishing the water supply of the underground gravels of Alameda County Water District is urgent.” It was the Board’s feeling that this now might be possible, with the pending completion of the Hetch Hetchy system and the “friendly attitude of San Francisco.” Accordingly, the Board called on San Francisco “to increase for the coming season of 1934 the amount of water which would ordinarily be let down from said [Calaveras] reservoir into Alameda Creek and that the President of the District shall be and he is hereby authorized to negotiate and enter into an agreement for the obtaining of such water for the purpose of meeting the needs of the District.”³³

By October 1934, San Francisco had completed the tunnel through the East Bay hills that would bring Hetch Hetchy water to the Bay Area, and by the following month, Hetch Hetchy water finally arrived at Crystal Springs Reservoir in San Mateo County via a pipeline across San Francisco Bay. Directors Lowrie and Shinn attended the celebration of the arrival of Hetch Hetchy water at Crystal Springs, accompanied by General Manager Richmond and Chris Runckel.

The November 8, 1934, Board meeting minutes note that while the lowering of the water table following the irrigation season had ceased, “the water table is the lowest in the history of the District,” resulting in an increase in salt water infiltration in two wells that had been recently sampled.³⁴ As a result, Board President Patterson and Runckel wrote to E.G. Cahill, manager of utilities for San Francisco’s Public Utilities Commission, renewing the request that they had made the previous spring for an advance release of Calaveras Reservoir water, stating that they were:

“ . . . asking San Francisco to come to our relief because our underground water supply situation has grown more acute during the long irrigation season just closed. The water table is now over forty feet below sea level. The penetration of saltwater from the Bay is nearing the extensive and deeper deposit of gravel. Once it penetrates that body of gravel, then our underground water supply will be ruined.”

Noting that the gravel beds’ water supply could be saved by increased percolation, Patterson and Runckel requested that “the city advance to our District out of its surplus in the Alameda Creek watershed, to be charged against our annual release, water to the extent of 15,000 acre-feet; that as large a part of this water as can, with perfect safety, be released this season and the remainder as soon as possible.” Patterson and Runckel further argued that:

“There are several important reasons why we are urging this upon the city. Our future water supply depends entirely upon the Alameda Creek watershed which the City very largely controls and yet which it cannot sell. The City is now receiving a surplus above its daily consumption from the Hetch Hetchy. . . . Our district has always been closely related to San Francisco in its economic and business relations and because of its location, climate and physical advantages, is and will continue in the future to be one of the best near-by farming areas in San Francisco’s immediate territory. The District has a population of 12,000, contains 54,000 acres of extremely fertile soil and has an assessed valuation of over nine million dollars.”

Patterson and Runckel next reminded the Public Utilities Commission of the District’s support of San Francisco’s efforts to obtain the Hetch Hetchy water supply: “In 1912, when San Francisco first began its fight for the Hetch Hetchy rights in Congress, the people of our District cooperated with San Francisco in every way.” They concluded, “Now that the opportunity is at hand we are placing our situation before your Commission in the hope that our District may be saved to a successful participation in the wonderful future which we believe the development of the Hetch Hetchy watershed will bring to the San Francisco Bay region.”³⁵

E.G. Cahill responded to Patterson and Runckel on January 2, 1935, writing that “this Commission and the other present officials of San Francisco are pleased to cooperate in every practical way for the most good of all concerned,” requesting that the District designate a representative to meet with the city to determine the best way to proceed.³⁶ The ACWD Board quickly named Will Patterson as its representative, and on February 2, 1935, Patterson reported to the Board that the city was favorable to the proposal for an advance release of water. Two alternatives presented by San Francisco to convey the water were reviewed. One involved delivering the water from the Sunol gravel beds to the area of the Niles Cone aquifers that were east of the Hayward earthquake fault, which divides the Niles Cone as it runs through the water district’s service area. The other alternative was to convey the water through an old 36-inch pipeline that had been owned by the Spring Valley Water Company and divert it into the Western Pacific Railroad gravel pit on the westerly side of the fault, where farmers had experienced a significant amount of salt water intrusion in their wells.³⁷

A special Board meeting was held on February 12, 1935, to discuss the alternatives and to determine how much water should be delivered to areas on the eastern and western sides of the fault. A number of farmers appeared from the Niles district who wanted to have the water placed directly into Alameda Creek, which would allow the majority of the water to percolate into the ground to the east of the fault. San Francisco objected to this

proposal, concerned that potential flooding might engender lawsuits. It was ultimately agreed that twenty-five percent of the water would be released east of the fault and the balance conveyed by the old Spring Valley Water Company pipeline to an area west of the fault, where it would be pumped into the Western Pacific Railroad gravel pit for percolation. San Francisco began releasing water from its Niles Reservoir on February 7, 1934. A March 12, 1934, communication from the Public Utilities Commission confirmed that these releases were expected to continue through the winter flood season.³⁸ By early April, the District finalized the terms of purchase of the Western Pacific Gravel Pit, and by June 29, 20 million gallons per day were flowing into the pit, amounting to two billion gallons of advance releases, in addition to nearly 1.5 billion gallons of water to which the District was entitled under the Bailey Formula.³⁹

The *Township Register* reported on the results of the efforts to deliver more water west of the fault through the old Spring Valley pipeline, stating that the 36-inch pipeline had been delivering 25 million gallons of water per day to the gravel beds west of the fault had caused the groundwater there to raise considerably.⁴⁰ However, the releases were not able to completely stop the movement of salt water into wells west of the fault. As a result, on November 6, 1935, Patterson and Runckel requested more water from San Francisco, explaining that the results of the releases thus far:

“... have been so substantial that we have been encouraged to think that a decided advance has been made in warding off the ruin of the underground waters by salt intrusion from the Bay. The results indicate that the restoration of the water level to a point of safety can be accomplished in much less time than has heretofore seemed possible.”

Patterson and Runckel reported that the District had received approximately 5 billion gallons since the releases had begun and they reported on levels from sample wells to demonstrate how the releases had helped recharge the



The Moccasin Powerhouse was among the first projects completed in the Hetchy Hetchy system and came online in 1925.

aquifers. However, “inasmuch as the danger of salt intrusion would not be eliminated until the water table has been restored to sea level,” they concluded their letter by requesting continuation of the advance releases into 1936, asking for another 5 billion gallons.⁴¹

San Francisco agreed to the additional releases for 1936, on the condition that the District confirm that it captured all of the released water, since of the waters already released, an estimated 25 percent had escaped to San Francisco Bay and had not percolated into the groundwater basin.⁴² Following assurances that adequate conservation measures would be implemented, Patterson and Runckel forwarded a draft agreement to San Francisco to cover the new releases. San Francisco Water Department General Manager and Chief Engineer N.A. Eckart replied to the District on April 7, 1936, stating that the city was open to an agreement providing for the additional releases, but that such an agreement would take time to finalize. To get water to the District as soon as possible, Eckart suggested addressing only a few main points immediately, in order to expedite delivery.

Among other things, Eckart requested that whenever the District received advance releases, it would provide water to all parties who had originally received so-called “free water” from Spring Valley Water Company. Promises of free water had been used by the Spring Valley Water Company to encourage property owners in the Alameda Creek watershed to sell their water rights. Those owners who conveyed their water rights to the company were promised free water in perpetuity, and when San Francisco assumed Spring Valley Water Company’s rights and responsibilities in 1930, the city was obligated to continue to provide the free water. With San Francisco now no longer exclusively reliant on Alameda Creek water supplies, it wanted the District to take over the free water obligations. In addition, Eckart wanted the District to sell water to any of Spring Valley Water company’s former customers remaining in the ACWD service area, customers whom San Francisco was still required to serve. The deliveries to both the Spring Valley and the free water customers would fall to the District whenever it received advance releases during the following fifteen years. After that time, the District would assume these responsibilities permanently. In return, after the District assumed all of the free water and the city’s district-area customers, San Francisco would lease the old Spring Valley 36-inch pipeline to the District and would initially provide 10 billion gallons of advance release; after five years, the advance releases would increase to 15 billion gallons.⁴³



ACWD has been monitoring wells throughout the area since the District was founded. Today crews drill monitoring wells with equipment (as depicted here) to assess the intrusion of salt water into area water supplies.

To assess the extent of the free water obligations, the District’s Board determined that a survey should be conducted among the various property owners along the “old Spring Valley pipeline running through the District

to ascertain on what terms the free water rights held by them . . . might be assumed and satisfied by the Alameda County Water District.” It was found that the free water rights obligations totaled almost 134 million gallons per year, although only about 65 million gallons had been put to use between December 1934 and November 1935.⁴⁴ The Board found the advantage of taking advance releases from San Francisco through the old Spring Valley pipeline to replenish the groundwater basin west of the Hayward fault far outweighed the burden of providing the free water. As a result, the ACWD Board decided on May 2, 1936, to enter into a contract with San Francisco for the advance releases of water as proposed. The contract was subsequently executed on September 24, 1936.⁴⁵ By September 1938, it was reported that 14.4 billion gallons out of the 15 billion gallons originally promised had been advanced to the District since releases had been curtailed in February 1938 due to a break in the pipeline to the Western Pacific gravel pit.

These releases by San Francisco had a beneficial effect on the levels in the groundwater basin. By March 1938 monitoring wells were determined to be at “the highest levels attained in many years,” with only one well in the Irvington area reported to be below sea level. At Centerville, groundwater stood several feet above sea level, and at Alvarado, which was close to San Francisco Bay, groundwater was near sea level. While fresh water in wells was rising, the salt content was also declining.⁴⁶

This temporary infusion of additional supplies was not, however, considered sufficient to permanently stave off the effects of salt water intrusion. This was the conclusion of a report by Charles West for the Federal Land Bank, which was presented to the Board of Directors in December 1937. West observed that the District “is operating very cheaply. It has no engineer, no central office, and its municipal water systems are self-supporting.”

West concluded that the advance releases from San Francisco had helped considerably in raising the groundwater levels: From the low point in the summer of 1934 to July 31, 1937, the groundwater level had raised more than 40 feet. The larger than normal runoff of Alameda Creek has also been an important factor contributing to this rapid groundwater recovery.” However, while the promised “15 billion gallons of extra water will raise the groundwater to above sea level, . . . it cannot remain long above sea level unless additional amounts of water can be obtained from San Francisco.”⁴⁷

The report concluded, “The records definitely show that salt water intrusion has occurred at numerous places around the southern end of San Francisco Bay where the water table has been drawn down below sea level . . . and . . . a definite hazard of further salt water intrusion exists.” Accordingly, the bank drew a line at the approximate location of present-day Highway 880,

and stated that pending further data showing that the line should be revised, the areas in the District west of the line would be ineligible for Land Bank loans.⁴⁸ The ACWD Board would have to begin focusing on ways to obtain larger and more reliable sources of water to continue to serve the area's growing demands for water.

Realizing that the beneficial circumstances of the advance releases from San Francisco would not continue, and to ensure a reliable supply for future years to meet anticipated growth in demands, the directors began the search for new reservoir sites in the Alameda Creek watershed, retaining consulting engineer A.W. Pioda to support this effort.⁴⁹ The Board was particularly interested in the potential for constructing San Antonio Dam on La Costa Creek, a tributary to Alameda Creek. Originally considered by the Spring Valley Water Company several years before, San Francisco had acquired the site from the company and provided the company's original plans for the dam to the District. By July 1937, the District directed staff to seek San Francisco's permission to build the dam, as well as federal support and funding. By August, Works Progress Administration labor had been promised if "the cooperation of San Francisco and the federal administration could be assured." A smaller dam with a height of 110 feet, compared to Spring Valley's originally conceived 150-foot height, was considered sufficient to meet the District's needs.

By November 1937, San Francisco officials apparently had grown reluctant to have the reservoir built, and General Manager Cahill refused to provide a permit to the District.⁵⁰ According to Will Patterson, "San Francisco would not give up a prior right to whatever was needed by San Francisco in an

San Antonio Reservoir site, circa 1911



emergency, and they were to define emergency. If we had built the dam and there was surplus water stored by the dam, we would have it so long as San Francisco didn't need it. He refused to give it under any circumstances."⁵¹ San Francisco would subsequently construct Turner Dam at the San Antonio site in the 1960s.

Discouraged by San Francisco's unwillingness to allow the District to use the San Antonio site, the Board quickly turned its attention to Arroyo del Valle in the upper Alameda Creek watershed.⁵² Will Patterson, attorney George Clark and A.W. Pioda visited the site in early January 1938 and Pioda subsequently reported on the details of the site, explaining that the proposed dam location would capture the runoff from 123 square miles and yield an annual average of approximately 10 billion gallons. Pioda was directed to explore the Works Progress Administration's potential interest in helping to build the Arroyo del Valle Dam, and T.W. Espy from San Francisco was hired to begin more detailed investigations of the site. Espy was still employed as an engineer with the San Francisco Water Department, and a request to use his services was subsequently approved by Public Utilities General Manager Cahill.⁵³

Espy presented his findings in April 1938 regarding the amount of water that might be made available by dams of varying heights and storage capacities at Arroyo del Valle. He confirmed that residents of the Pleasanton County Water District service area might have the ability to claim prior rights to some of the Arroyo del Valle's water supplies, but concluded that, based on a forty-two-year record of flows, an Arroyo del Valle dam could yield approximately 15 million gallons per day, even after satisfying any water rights claims from the Pleasanton area. Perhaps not surprisingly, given his relationship with San Francisco, Espy did caution that, while such a reservoir could be constructed, "for a great number of years, interest on the cost of the Arroyo del Valle Dam would be more than the cost of purchasing from San Francisco the additional water needed by the District for irrigation purposes."⁵⁴ Consulting engineer Pioda subsequently reported that the District would not be justified in building the dam unless the federal government bore most of the expense, and Attorney George Clark was directed to correspond with Congressman A.E. Carter regarding the potential of a Reconstruction Finance Corporation (RFC) loan to build the reservoir.⁵⁵ Carter was unable to secure the loan from the RFC, and no further efforts were made to pursue this option until the late 1940s.

As the District searched for new water supplies, 1938 saw further changes on the Board of Directors as a result of the death of George P. Lowrie. Lowrie was replaced by Centerville banker Frank T. Dusterberry. A year later, Christian Runckel died after twenty-five years of service as Secretary-



Frank T. Dusterberry
ACWD Director 1938 – 1944
Centerville banker Dusterberry became
ACWD' representative to outside water
organizations.

Auditor. Acknowledging his service in the establishment of the District, the *Township Register* announced his death under the headline “Champion of Water Rights Passes Away.”⁵⁶ A plaque subsequently installed on the District’s office building in the early 1940s commemorated his role in the formation and operation of the District, “it being due almost entirely to his untiring efforts that the formation of the . . . District was made possible.”⁵⁷ Runckel also served from its beginning in 1914 as the chair of the County Water Districts Section of the Irrigation Districts Association of California, or IDA (today’s Association of California Water Agencies).

Dusterberry soon stepped into Runckel’s role as representative to the California IDA, and as chair of the County Water District Section.⁵⁸ Replacing Runckel as Secretary-Auditor was H.F. Harrold. Harrold was also a civil engineer who had retired from the Southern Pacific Railroad, and he was subsequently appointed Engineer for the District after several years of reliance on consultants following Cyril Williams’ termination in 1933.⁵⁹

By 1939, the ACWD Board also began working to eliminate the free water rights customers that it assumed as part of its September 1936 agreement with San Francisco. Christian Runckel had been tasked to “ascertain and determine, if possible, the amount of free water to which the various property owners (situated on property to which free water rights were granted) are entitled,” in May 1939.⁶⁰ After Runckel’s death the following July, the Board turned to President Will Patterson to carry on with Runckel’s study of free water rights and to negotiate with the “Clough, Sanborn, and Nichols interests with a view to acquire the water rights appurtenant to their lands, this being an effort to extinguish existent riparian water rights.”⁶¹ It was subsequently discovered that the Clough, Sanborn and Nichols tracts were all owned by Pacific Coast Aggregates, and the District was finally able to purchase these rights for \$4,000 in 1941.⁶²

Some of the other holders of free water rights also sold them to the District voluntarily. Others were reluctant to release their free water rights at any price. In early 1945 the District attempted to purchase the free water rights held by the California Nursery, which was entitled to receive 50 million gallons of water per year. Will Patterson would report that the nursery’s owner had “no desire of disposing” of this right.⁶³ In March 1945, the District offered \$10,000 to Oliver Ellsworth, the owner of the Ellsworth free water rights, to purchase these rights. Ellsworth declined, and it would not be until the mid-1950s that a resolution was reached with the property owners of the former Ellsworth estate to finally extinguish a majority of these free water rights. Over the years, the District was able to incrementally extinguish the free water rights of various customers who still held title to them by offering to install new service lines to the District’s distribution

system when their private service connections failed. The vast majority of the “free water” customer rights would be extinguished by 2005, leaving only a few remaining customers.

As the District made efforts to extinguish the free water rights, and thereby reduce both an administrative and operational burden, it continued to fight the export of water from the Niles Cone Groundwater Basin to areas outside of the ACWD service area. While the District had successfully obtained title to the East Bay Municipal Utility District’s wells at Alvarado in 1930, the City of Hayward continued to pump from wells that drew water out of the Niles Cone on property owned by the city located on the periphery of ACWD’s boundary with the Eden Township County Water District.⁶⁴ The Hayward Waterworks were initially established in the late 1880s and, by 1892, the San Lorenzo Water Company had installed a pumping plant at Alvarado and began drilling for wells there. Hayward took over this system in 1920, and by the late 1930s was serving this water to both the city of Hayward as well as the unincorporated areas of San Lorenzo and Mt. Eden Township.⁶⁵

At the time the City of Hayward acquired the Alvarado wells, 620,000 gallons per day were being pumped to Hayward water customers. Hayward, however, soon began increasing pumping capacity at the wellfield, causing concern from both ACWD and surrounding landowners. In a November 1920 letter from ACWD’s counsel to the Hayward City Attorney, the District asserted its rights to the water that was being pumped and advised that it was their understanding that the City intended to pump a greater amount of “waters from within the lands within the Alameda County Water District.”⁶⁶ The District demanded that the City desist from these plans. In response, the City stated that it was installing the larger capacity pumps, which operated on electrical energy rather than steam and oil burning, to save energy costs.⁶⁷

By 1929, additional work to expand the capacity of the Alvarado wells by the City of Hayward continued to cause concern for both ACWD and for the neighboring Eden Township County Water District. Interestingly, during the 1930s, Cyril Williams had served as General Manager/Engineer for the Eden Township district while similarly retained as Engineer for ACWD. Williams contended, based on studies he had conducted for both agencies, that the groundwater basin underlying the Eden district (the San Lorenzo Cone or Southeast Bay Plain Basin) and the Niles Cone were connected, and that water drawn from one aquifer affected the other.⁶⁸ Accordingly, in May 1931, Eden Township Water District took the initiative to file suit against Hayward to limit the City’s pumping at its Alvarado wells to the average daily, monthly and annual rates pumped over the immediately previous five year period.

In response, the City contended that it should be able to pump up to its maximum capacity of 828,000 gallons per day. The case was finally decided by the California Supreme Court, which did side with Eden Township with respect to limiting Hayward to an annual maximum pumping amount of nearly 187 million gallons per year (or slightly over a half-million gallons per day on average), while holding that the City could pump up to the desired 828,000 gallons per day capacity, as long as the annual limit was not exceeded.⁶⁹

By early 1938, the ACWD Board and Hayward City Council had initiated efforts to jointly explore ways to further reduce the City's diversions from the District's underground supplies. At the March 5, 1938, meeting of the ACWD Board, representatives from Hayward were present for a general discussion of how to reduce or eliminate this pumping activity. One way to accomplish this was for Hayward to purchase water from San Francisco's Hetch Hetchy system through ACWD's connection with the Hetch Hetchy pipeline. It was agreed at that time to study the issue further and to hold another joint meeting.⁷⁰

It does not appear that the concern with Hayward's continued pumping was again addressed until 1943, when relations between the District and the city grew further strained as a result of the city's continued pumping, both from its Alvarado wells and from wells the City had sunk into the basin underlying the Eden Township Water District. Nothing had yet come of the previously discussed proposal for Hayward to take Hetch Hetchy water through the District's pipelines, and the city needed additional water supplies. As a result, Hayward officials turned to the Eden Township Water District, and requested that the Eden district increase Hayward's water deliveries beyond the limitations of a 1938 contract between the city and Eden.⁷¹

Concerned over the potential increase in pumping, ACWD Attorney George Clark met with Hayward's legal counsel and advised the ACWD Board that the 1939 agreement allowed Hayward to increase its deliveries from Eden Township through the payment of a surcharge for any water purchased above the basic contractual limit of 30 million gallons per year. As a result, the ACWD Board directed that a letter be sent to Hayward's officials protesting any further groundwater diversions from the Eden Township groundwater basin, since this activity directly affected wells in the Niles Cone basin.⁷²

The letter apparently failed to have any effect on Hayward's pumping and by 1945 the city was exporting even greater amounts of groundwater. In response, the ACWD Board in July 1945 determined to have Attorney George Clark take any action necessary to stop Hayward from pumping additional water, including bringing a lawsuit against the city.⁷³ Clark subsequently

wrote to Hayward’s legal counsel that “if the pumping of water is to be undertaken it will be necessary for Alameda County Water District to begin action to prevent the threatened diversion of water through the pumping.”⁷⁴

Hayward’s attorney responded with a renewed offer to discuss a potential agreement by which Hetch Hetchy water could be conveyed through ACWD’s pipelines to Hayward, the solution originally discussed in 1938.⁷⁵

Washington Township in World War II

War industries dominated the Bay Area during World War II, including the Richmond and Mare Island shipyards, the Oakland Port and Naval Supply Depot, and Alameda Naval Air Station. The East Bay became the staging area for troops and materiel, war factories, shipyards, and housing.

While remaining agricultural during the war, Washington Township was still very much part of the support network, selling war bonds, watching for enemy planes, and enlisting in the armed forces.



Members of the Young Ladies Institute sold war bonds in Irvington in 1944. They are (left to right): Unidentified woman, Irene Harvey, Carol Anne Rose, Irma Marks, Mae Avila, and Paula Galvin.



Even though their families had been sent to relocation camps, Henry and Joseph Kato (far left and far right in photo) joined the Army and fought in World War II. They are shown with Fred Sakuda, Taiju Kato, and Yosuto Kato before deployment.



Volunteers Minnie Sarmiento Souza (top) and Rosiland Sarmiento kept a lookout for enemy aircraft at this civil defense tower, built in 1943 in Warm Springs.



Louis S. Amaral
ACWD Director 1941 – 1956; 1958 – 1964
An Alviso-area farmer, Amaral served on the ACWD board twice.

Subsequent discussions between the ACWD Board and Hayward city officials revealed that the city estimated a need for an additional 300 million gallons of water per year within the next five years. To meet this need, the city and District agreed that Hayward would need to import the additional supplies from a connection to the Hetch Hetchy pipeline where it passed through ACWD's service area. This would not only benefit Hayward, but might also allow ACWD to tap into the pipeline should ACWD require additional Hetch Hetchy water in the future.

Discussions continued between the District and the City of Hayward into 1946. When ACWD Counsel George Clark reported that the city had approached East Bay Municipal Utility District about obtaining supplies from that agency, and had been rebuffed, he advised that the District should be in a position to file suit against both the City of Hayward and the Eden Township Water District, and the Board went so far as to authorize the purchase of a lot within the Eden district to have standing to file the suit.⁷⁶



Manuel J. Bernardo
ACWD Director 1942 – 1966
The District's Manuel J. Bernardo water softening plant is named in honor of Director Bernardo, who served twenty-two years on the board.

By August, a delegation of city officials and staff, including the mayor and two city councilmen, appeared at the ACWD Board meeting to discuss the concerns of both the city and the District. The Hayward officials advised that they were in favor of tapping into the Hetch Hetchy system and transporting the supply through a 24-inch pipeline that would run through ACWD territory to Hayward. They estimated that the cost of the new pipeline would be approximately a half million dollars, and felt it appropriate for ACWD to pay for the portion of the pipeline that ran through the District.⁷⁷

The ACWD Board, feeling that it had leverage as a result of the pending lawsuit, countered with an offer to pay ten percent of the total cost, on the condition that Hayward cease its pumping from the Niles Cone Groundwater Basin. George Clark reported that the San Francisco Public Utilities Commission's General Manager had advised him that "Hayward would almost surely connect with the Hetch Hetchy system."⁷⁸ Hayward would subsequently start purchasing water from San Francisco in April 1950, after which time, by the mid-1950s, its groundwater pumping from the Alvarado wells would be gradually curtailed and then stopped altogether.



Jack Prouty
ACWD Director 1944 – 1957
A teacher turned farmer, Prouty managed lands owned by Bailey Farms at the time he was elected to the board.

While the discussions between the District and Hayward dragged on through the mid-1940s, changes on the Board of Directors occurred with the death of Emanuel George in September 1941. George had served on the Board for twenty-seven years, and was replaced by a fellow farmer, Louis S. Amaral, who lived in the Alviso area of Washington Township between Centerville and Alvarado.

The 1942 election was a contested one, and while both Directors Dusterberry and Patterson were reelected in a close race, J.C. Shinn was defeated

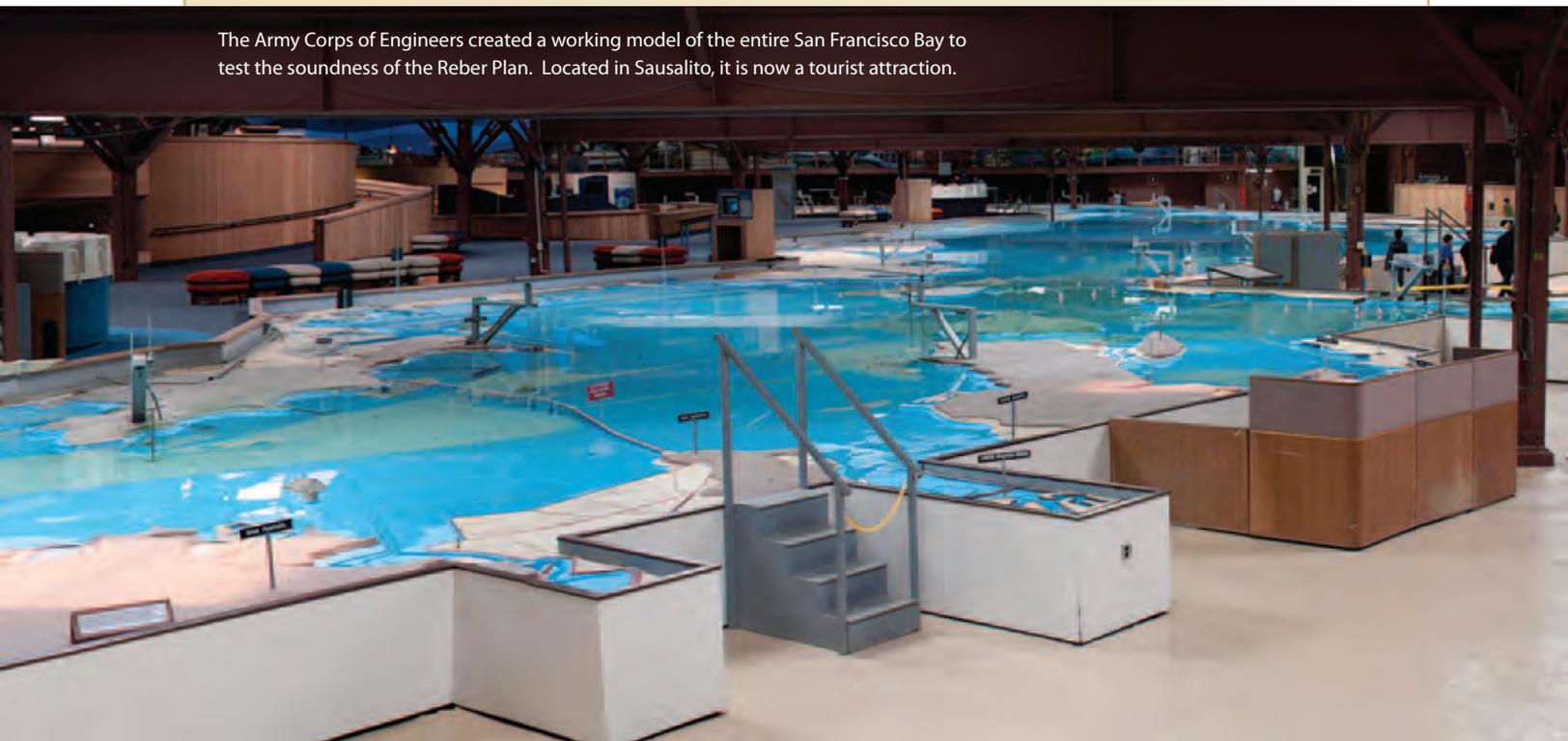
A Plan to Change the Bay's Hydrology to Create More Fresh Water

Named after John Reber, a former teacher, theatrical producer, and self-taught engineer who first proposed the concept, the Reber plan involved the construction of two dams across San Francisco Bay. One dam would run from Oakland to San Francisco, just to the south of Treasure Island, which would completely cut off the southern part of San Francisco Bay. The second dam would lie between Richmond in the East Bay and San Rafael in Marin County, in the approximate location where the Richmond-San Rafael Bridge is today, effectively isolating the northern part of San Francisco Bay and all of San Pablo Bay.

Under the proposed plan, which was also known as the San Francisco Bay Project, the mouth of the Sacramento River near Suisun Bay would be channelized by these dams, and would feed two freshwater lakes within the Bay, providing drinking water supplies to the residents of the Bay Area. The barriers would support rail and highway traffic. Between the lakes, Reber proposed reclaiming 20,000 acres of land that would be crossed by a freshwater channel. West of the channel would be airports, a naval base and a pair of locks comparable in size to those on the Panama Canal. Industrial plants would be developed to the east.⁸⁸

At its October 11, 1947, meeting, the ACWD Board voted an appropriation of \$1,000 to help finance the Reber Plan investigations.⁸⁹ The *Township Register* also enthusiastically endorsed the proposed Plan: “. . . with unlimited fresh water available for the mere cost of lifting it from right under our feet, we venture to predict that many of us, and the children of the rest of us, will see Oakland extending right down to the Santa Clara line – an industrial belt in the low lands, with the middle ground and foothills being occupied by an impressive residential area.” A February 1948 headline in the *Township Register* proclaimed that Board President “Will Patterson Says Reber Plan Only Hope for Water,” and later that year the Irrigation Districts of California passed a unanimous resolution calling for a complete study of the Reber Plan.⁹⁰ By 1953, the U.S. Army Corps of Engineers recommended a more detailed study of the plan and eventually constructed a hydraulic model of the Bay Area to test it. The barriers, which were the plan's essential element, failed to survive this critical study, and by the early 1960s, the proposal had been scrapped.

The Army Corps of Engineers created a working model of the entire San Francisco Bay to test the soundness of the Reber Plan. Located in Sausalito, it is now a tourist attraction.



by newcomer Manuel J. Bernardo, a former Township constable who now farmed 12 acres of apricots in Centerville.⁷⁹ Shinn's resolution of appreciation noted, "As a member of the Board since 1914 he had brought to the service of the district an unrelenting and loyal attention to every duty, an exact and candid judgment dominated by principle and a crystal conscience."⁸⁰

The 1944 election returned incumbents Amaral and Grimmer to office, but death once again interceded to change the composition of the Board when Frank Dusterberry passed away in the late summer. This event resulted in

a major disagreement between the remaining four directors, with Patterson and Grimmer supporting one candidate and Amaral and Bernardo supporting another. A deadlock ensued and Dusterberry's seat was left vacant until the election of 1946 returned Bernardo and Patterson, and seated newly elected Director Jack Prouty to fill Dusterberry's vacant seat.⁸¹ Prouty had been a teacher who turned to farming in the 1940s and now managed lands owned by Bailey Farms, the second largest farming interest in the Township after the Patterson holdings.⁸²

By 1945, District staff and Board resumed their search for additional water supplies. Director Patterson reported on September 1, 1945, that he had met with senior staff from the San Francisco Water Department, who advised him

that the population served by the city was increasing at such a rapid rate that it would be necessary for San Francisco to develop additional water supplies, "either by adding another unit to the present system, or by using the Calaveras system to its capacity . . . which would directly affect this District and compel this District to develop additional water supply."⁸³ The District would accordingly begin to once again look locally and outside of the District for supplemental supplies.

In March 1946 the Board considered tapping the water supplies from Dry Creek in the Decoto area. Although its name implied the opposite, Dry Creek had a runoff of 4 million gallons per day. The Board also resurrected the concept of Del Valle Dam in the hills behind Livermore, "especially if Pleasanton and or Livermore would cooperate with this District," and in June 1947 the Board and staff visited both the Del Valle site and the San Antonio Dam site on La Costa Creek to explore these potential options once again.⁸⁴



John Reber, architect of the Reber Plan

The summer of 1947 provided an added urgency to this search for additional sources of water, when a continuing drought caused Board President Will Patterson to warn that “the water situation in Washington Township is more acute than most people realize.” In April 1947 the District was notified by the San Francisco Water Department that there would be no releases from Calaveras Reservoir that year due to the dry conditions.⁸⁵

In a June 27, 1947, article in the *Township Register*, Patterson explained that the water levels in the District’s wells were at least six to ten feet lower than they had been the year before, and he added that there was a danger that the levels could drop to a point where salt water would intrude into the District’s wells. Patterson further stated that about 20 million gallons of water per day were being pumped to meet domestic and irrigation needs within the District, and he cautioned that under the current drought conditions, there was no way to replenish these underground supplies.⁸⁶ A special meeting of the Board was called on March 10, 1947, to consider additional water supplies “due to the emergency caused by lack of rainfall and run-off this season.”⁸⁷

By August 1947, the ACWD Board had once again determined that Alameda Creek storage sites were not economically feasible without obtaining outside assistance, and the Board turned to explore three other options. The first was known as the Reber Plan, an ambitious proposal involving massive dams and the creation of new freshwater lakes in San Francisco Bay. It was supported by a number of communities around San Francisco Bay. The San Francisco Bay Project, as it became known, did not survive critical study and the plan was abandoned.

Fortunately, the other alternatives considered by ACWD to obtain new water supplies were less ambitious but much more practical than the Reber Plan. The second option explored the feasibility of purchasing from San Francisco water that was being pumped from the former Spring Valley Water Company’s wells in Pleasanton. San Francisco would then replace the water pumped from Pleasanton with additional Hetch Hetchy water coming from a new pipeline then under construction across the San Joaquin Valley. According to San Francisco Water Department engineer T.W. Espy, the new pipeline would be completed in 1949, at which time pumping at the Pleasanton well fields would cease.⁹¹

The third option was for Congress to appropriate funds for Folsom Dam on the American River as part of the Central Valley Project. The Central Valley Project was at that time under construction by the federal Bureau of Reclamation to bring irrigation water to the Sacramento and San Joaquin Valleys. The ACWD Board had, in 1931, opposed the Central Valley Project primarily because they saw the water supplies going to agricultural

interests in the San Joaquin Valley and not to the Bay Area. Now, a proposal emerged to take water from Folsom Dam and pump it either through the city of Danville in Contra Costa County or over the Altamont Pass to serve communities in Contra Costa, Alameda, and Santa Clara Counties.⁹²

In December 1947, a telegram was transmitted to the U.S. Congress, signed by all five ACWD Board members, asking that appropriations for construction of the Folsom project be made to the Bureau of Reclamation rather than to the Army Corps of Engineers, so that the income from power sales would go directly toward offsetting the project's pumping and distribution costs. The telegram reiterated the dire straits of farmers in the Washington Township area, stating that this highly productive area of orchard and specialty crop farms now is "confronted with economic disaster from water shortage."⁹³

All of the alternatives considered by the District for bringing water from sources outside the District were, unfortunately, long-term solutions that were impossible to implement quickly. The District was faced with an impending disaster should the existing drought continue. Will Paterson

The Shinn Gravel Works mined rock and gravel near Alameda Creek.



warned on the pages of the *Township Register* that unless an immediate solution were found to the existing water shortages, farmers in the District's entire service area would soon revert to dry farming.⁹⁴ As the drought lingered on into 1948, the *Township Register* reported that by January 30, twenty-two days had passed without any rainfall in Washington Township, and that the last rain (on January 8, 1948) measured only one third of an inch.

Local farmers made up for the lack of precipitation by pumping groundwater much earlier than they normally would, which had the effect of further overdrafting the groundwater basin and exacerbating salt water intrusion into the fresh water aquifers. Conditions were considered so severe that "churches of all faiths of the area joined in special services and prayers for rain."⁹⁵ By August 1948, a survey by the *Township Register* revealed that, with water levels dropping in the groundwater basin at the rate of one foot per week, "considerable acreage cannot be farmed for much longer unless there is a marked improvement in well conditions."⁹⁶

As the drought continued, the ACWD Board actively looked for ways to conserve as much local water in Alameda Creek as possible. In January 1948, a joint meeting was held with Alameda County Board of Supervisors member Stanley and County Public Works engineering staff to seek assistance in "cleaning out Alameda Creek and the development of a percolation plan covering that area."⁹⁷ Unfortunately, the County representatives knew of no County funds that might be applied for this use, nor did they believe that the County had any jurisdiction over the dumping of debris into the creek. It appeared that ACWD would need to proceed on its own, and workers for the District soon started removing debris from the stream's bed to enhance percolation of water from the stream bed into the aquifers of the Niles Cone. The District also made plans to deepen the Alameda Creek channel and to install levees along the creek's bed to prevent water from flowing away from the porous gravels where it could recharge more easily.⁹⁸

To further increase recharge potential, the District also moved to purchase abandoned gravel pits in the Niles area. (The District already had purchased the Western Pacific Railroad Pit in the mid-1930s.) By July 1948, the District had finalized offers to Pacific Coast Aggregates to purchase 40 acres of abandoned quarry area for \$5,000, and the widow of former Board President J.C. Shinn agreed to lease the 69-acre Shinn Pit along Alameda Creek for \$700 per year for twelve years.⁹⁹ By October 1948, the District was busily working to prepare these newly acquired pits to percolate water in advance of the anticipated rainy winter months.¹⁰⁰ By December 1948, the District had installed four corrugated steel culverts, five feet in diameter and 140 feet long, to divert flows from Alameda Creek into the newly acquired quarry pits. According to Board President Will Patterson,

“The culverts are a part of the over-all \$50,000 program to raise water levels in a 6000-acre area above the Niles Branch of the Hayward Fault and to form a barricade against salt water intrusion into the area below the fault.”¹⁰¹

To protect the quality of water in the Niles Cone, the Board of Directors also passed a resolution to “request the Board of Supervisors of Alameda County to adopt an ordinance regulating the drilling of all wells in the County in an effort to control the pollution of underground waters by salt water, sewage, and industrial causes.”¹⁰² This was the first salvo in an ongoing effort to improve the quality of water in the Niles Cone that would become a major policy objective of the Board for many years to come. It

would not be until the winter of 1950-51 that above average rainfall would mitigate the effects of the drought during the latter years of the 1940s.

In December 1948, the Board adopted a new schedule of water rates, including a commodity rate charge of \$.30 per 100 cubic feet (748 gallons), a 25 percent increase. This rate actually declined with greater water use to \$.11 per 100 cubic feet for customers using water in excess of one-third of a million gallons per month. Surprisingly, these basic commodity rates would remain in effect until 1972.

According to Will Patterson, the rate increase was needed

to offset the cost of service to customers, including the need to purchase more water from San Francisco’s Hetch Hetchy system. Highlighting the potential future cost savings that could be realized from the soon to be completed percolation projects in Niles, Patterson maintained, “If the conservation program is successful and water levels are raised in local wells, the amount of water to be purchased outside the District will decrease accordingly. . . .”¹⁰³

By June 1949, as a result of the ongoing drought, the Board did finally vote to bring Hetch Hetchy water into the Irvington District, and to charge customers receiving it \$.075 more per 100 cubic feet over the adopted



Water heading toward San Francisco flowed from the Sierra through the Moccasin penstock pipes, shown here in 1931.

commodity rates. Board President Will Patterson voted against this action, one of the few times a “no” vote was recorded during the first twenty-five years of the District’s existence. Although the District did purchase Hetch Hetchy water intermittently, obtaining additional permanent supplies from San Francisco’s Hetch Hetchy system was unlikely in the late 1940s, since this water was available only in limited quantities, and San Francisco still had to supplement this supply with water from Alameda Creek.

A second aqueduct under construction from Hetch Hetchy would eventually help to mitigate this concern, but it was not due to go online until at least 1951. Another problem with the Hetch Hetchy supply in meeting the water supply needs of Washington Township was that, even when this source became more reliably available, it cost considerably more than groundwater pumping.¹⁰⁴ Given these considerations, the District’s Board grew increasingly interested in the feasibility of importing water from Folsom Dam on the American River or from another source in either the Central Valley or Sierra Nevada.

On February 2, 1949, Board President Will Patterson convened a public meeting in the Niles district to discuss the potential formation of a county-wide drainage and water conservation district. Patterson, who was a member of the advisory committee on the formation of the new district, told the assembled public that such a district would have the financial resources to import water supplies from distant sources. It was also believed that such a new county-wide district could help other communities in Alameda County secure water supplies from Folsom Dam or other parts of the Central Valley Project system.¹⁰⁵ Patterson’s actions at this meeting do not appear to have been in line with the opinions of the other members of the ACWD Board, who, on January 18, 1949, expressed opposition to proposed legislation to create the county-wide drainage and conservation district. It would not be until their meeting of February 12, 1949, that the other ACWD Board members’ questions were satisfied by County staff, and tentative support for the concept was given.¹⁰⁶

In March 1949, the ACWD Board met with the Alameda County Board of Supervisors to further discuss the county-wide flood control and conservation district proposal. At that time, all of the members of the Board of Supervisors present “agreed unanimously that no waters of the Alameda Creek watershed should be diverted or transported to any other place or section of the proposed . . . district.” It was further agreed that the District’s legal counsel would draw up an amendment to the enabling legislation expressing this intent, and ACWD support was thereby assured.¹⁰⁷

By May, the proposed Alameda County Flood Control and Water Conservation District was gaining more support from Washington Township

residents. Both the Niles and Centerville Chambers of Commerce voted to endorse the proposal, after language limiting the proposed district's taxation powers had been introduced as an amendment to the enabling legislation.¹⁰⁸

On July 2, 1949, the California Legislature passed a bill permitting the formation of the Alameda County Flood Control and Water Conservation District. The new district would be governed by the Alameda County Board of Supervisors, in cooperation with an advisory commission, and the new agency would have the power to undertake water conservation and flood control projects throughout the County.¹⁰⁹

With the creation of the Flood Control and Water Conservation District, Will Patterson was selected to serve as the first chair of the advisory commission, making him the head of both the ACWD Board and of the Flood Control advisory body from 1948 until 1954. During this time, Patterson personally undertook the effort to coordinate the activities of the two agencies and to resolve jurisdictional problems. His solution was to have work on Alameda Creek's channel taken over by the Flood Control agency. This included a plan to straighten Alameda Creek and to increase the width of its channel from less than 100 feet to nearly 600 feet in the section of the creek starting at Mission Boulevard in Fremont down to the creek's outlet in San Francisco Bay. This would greatly ease the threat of flooding, as well as, according to Patterson, "expose large areas of gravel, which will automatically become percolation areas."¹¹⁰

After its collapse in 1918, Calaveras Dam was rebuilt and back in service by 1925. When the City of San Francisco bought the Spring Valley Water Company and its holdings, they acquired Calaveras Dam, which they still own today.

The creation of the Alameda County Flood Control and Water Conservation District, with greater resources at its disposal, was believed to greatly



improve ACWD's future ability to percolate runoff from Alameda Creek into the groundwater basin. Patterson foresaw a time when "check dams" on the widened channel could impound this water for percolation both through the channel bottom as well as in the adjoining gravel quarries, forcing back salt water intrusion and reclaiming more of the groundwater basin for use by the District's customers.¹¹¹

Consistent with this vision, in the late 1940s, the District also moved to protect and firm up its rights to water from Alameda Creek. In July 1949, the Board of Directors met with T.R. Simpson of the California State Engineer's Office to discuss the opportunities for state assistance to secure additional water resources. Simpson strongly recommended that the Board move quickly to make application "for excess water [flowing] in Alameda Creek to protect the underground reservoir of this District." Based on Simpson's advice, the Board "agreed that application for excess water should be made as quickly as possible. . . ." and resolved to file for water rights to 40,000 acre-feet of unappropriated water from the Alameda Creek watershed.¹¹²

The new application for 40,000 acre-feet of water was filed within two weeks of the meeting with Simpson. Application number 13279 was subsequently approved by California State Engineer A.D. Edmonston in 1951, and specified that water would be stored in the Niles Cone Groundwater Basin and collected from Alameda Creek stream flows between October 1 and June 1 of each year. The diversion works to convey this water, consisting of pipes to convey the water to the percolation areas along Alameda Creek, was estimated to cost \$150,000. The water would be used to irrigate 30,000 acres within the Alameda County Water District service area between April 1 and October 1 annually, in addition to serving municipal and domestic needs. Water was to be applied to percolation areas by the following rainy season.¹¹³ Not confining themselves to Alameda Creek waters, the Board on August 13, 1949, also passed a motion to obtain 40,000 acre-feet of unappropriated Old River water from the Sacramento-San Joaquin Delta, "in conjunction with Livermore, Oakland, Santa Clara and San Benito Counties."¹¹⁴

Summary: Drought, New Water Supplies, Better Distribution: 1930-1950

By 1950, the Alameda County Water District had acted to secure the waters of the Niles Cone Groundwater Basin for Washington Township residents, successfully weathered two prolonged droughts in the 1930s and 1940s, initiated the first of many improvements to more effectively percolate water from Alameda Creek through the purchase of abandoned quarry pits adjacent to Alameda Creek, as well as filed for water rights on Alameda Creek and in the Sacramento-San Joaquin Delta. Moving haltingly and cautiously

at first, the ACWD Board began, over a twenty-year period, to integrate the area's water distribution system by the purchase of several small, private systems that had previously served the area, and through a series of capital projects to replace and lay new pipelines and construct new distribution system reservoirs.

With the coming of Hetch Hetchy water in the mid-1930s, the District was able to temporarily avoid a potential catastrophe when advance releases from Calaveras Dam raised the groundwater levels to above sea level, averting the spread of salt water into the freshwater aquifers that had begun in the 1920s.

The ACWD Board also explored a range of additional water supply and storage options that would supplement local resources and help meet anticipated future needs. This quest would set a policy theme that would carry forward into the 1950s, when post-war growth and development in the area would dramatically increase demands for water, as Washington Township's transition from a predominately agricultural economy to a full-blown urban economy with a burgeoning housing market and industrial base would continue to accelerate.

Chapter 3 Endnotes

-
- ¹ "Battle Won for Alameda Creek Water," *Oakland Tribune*, May 27, 1930, found in ACWD Board Minutes, Volume 2, June 7, 1930, p. 450.
- ² U.S. Geological Survey, "Summary of Floods and Droughts in the Southwestern States," http://geochange.er.usgs.gov/sw/impacts/hydrology/state_fd/cawater.
- ³ "Water Situation in Township Reviewed by Chris Runckel," *Township Register*, May 2, 1929.
- ⁴ Minutes, ACWD Board of Directors, Volume 2, January 5, 1931, and April 25, 1931, p. 32 and quotation from pp. 50-51.
- ⁵ Caswell, Patterson Oral History, p. 16.
- ⁶ Minutes, ACWD Board of Directors, Volume 2, August 24, 1929, p. 354.
- ⁷ Minutes, ACWD Board of Directors, Volume 3, April 1, 1933, p. 183.
- ⁸ Minutes, ACWD Board of Directors, Volume 2, September 5, 1931, p. 74.
- ⁹ Minutes, ACWD Board of Directors, Volume 2, July 29, 1931, p. 71.
- ¹⁰ "Shall Water System of This District Go to Private Capital?" *Township Register*, October 23, 1930.
- ¹¹ Minutes, ACWD Board of Directors, Volume 2, February 7, 1931, p. 37.
- ¹² Minutes, ACWD Board of Directors, Volume 2, June 6, 1931, p. 59.
- ¹³ Minutes, ACWD Board of Directors, Volume 2, July 8, 1931, p. 67 and September 5, 1931, p. 75.
- ¹⁴ Mathew P. Whitfield, General Manager of the ACWD, 1953-77, An Oral History Interview Conducted in 1986 by Ann Lage, in "The Patterson Family Ranch, Southern Alameda County in Transition," Volume 2, Recorded Oral History Office, the Bancroft Library, University of California at Berkeley, 1988.
- ¹⁵ Minutes, ACWD Board of Directors, Volume 2, August 4, 1934, pp. 263-264.
- ¹⁶ Minutes, ACWD Board of Directors, Volume 3, January 13, 1939, p. 85 and March 4, 1939, p. 95.
- ¹⁷ Caswell, Patterson Oral History, p. 17.
- ¹⁸ Minutes, ACWD Board of Directors, Volume 4, June 25, 1938, p. 47.
- ¹⁹ "Plans for Water District Outlined at Farmer Session," *Township Register*, January 20, 1939.
- ²⁰ "District will Take Over Water Supply," *Township Register*, January 28, 1937.
- ²¹ "New Water Reservoir Assures Development for This District," *Township Register*, October 14, 1938.
- ²² "Champion of Water Rights Passes Away as Township Project Nears Completion," *Township Register*, July 7, 1939.
- ²³ Minutes, ACWD Board of Directors, Volume 3, February 4, 1933, p. 171.
- ²⁴ Lage, Whitfield Oral History, p. 15.
- ²⁵ "Veteran Water Manager Resigns Post," *The Oakland Tribune*, July 28, 1953.
- ²⁶ Minutes, ACWD Board of Directors, Volume 3, March 4, 1933, p. 176; Caswell, Patterson Oral History, p. 18.
- ²⁷ Minutes, ACWD Board of Directors, Volume 2, March 31, 1933, p. 249.
- ²⁸ Minutes, ACWD Board of Directors, Volume 2, June 3, 1931, p. 134 and June 26, 1933, p. 196.
- ²⁹ Minutes, ACWD Board of Directors, Volume 2, March 5, 1931, p. 105.
- ³⁰ Minutes, ACWD Board of Directors, Volume 2, May 21, 1932, p. 129.
- ³¹ Caswell, Patterson Oral History, Interview 2, August 15, 1955, p. 1.
- ³² Letter from Christian Runckel to William Cavalier and Co., July 26, 1932, ACWD historical records, box #4005, folder no. 5.
- ³³ Minutes, ACWD Board of Directors, Volume 3, March 20, 1934, pp. 238-239.
- ³⁴ Minutes, ACWD Board of Directors, Volume 3, November 8, 1934, p. 275.
- ³⁵ Letter from W.D. Patterson and Chris Runckel to San Francisco Public Utilities Commission, December 1, 1934, copy in ACWD Board Minutes, Volume 3, December 1, 1934, pp. 277-278.
- ³⁶ Letter from E.G. Cahill to Alameda County Water District, January 2, 1935, copy in ACWD Board Minutes, Volume 3, January 5, 1935.
- ³⁷ Minutes, ACWD Board of Directors, Volume 3, February 2, 1935, p. 284.
- ³⁸ Minutes, ACWD Board of Directors, Volume 3, March 16, 1935, p. 297.

- ³⁹ Minutes, ACWD Board of Directors, Volume 3, April 6, 1935, p. 305 and June 1, 1935, p. 317.
- ⁴⁰ "Water District Pipeline Raises Outlying Wells," *Township Register*, July 3, 1935.
- ⁴¹ Letter from W. Patterson and C. Runckel to E. G. Cahill, November 6, 1935, copy in ACWD Board Minutes, Volume 3, November 2, 1935, pp. 335-337.
- ⁴² Letter from E.G. Cahill to Alameda County Water District, November 20, 1935, copy in ACWD Board Minutes, Volume 3, December 7, 1935, p. 341.
- ⁴³ Letter from N.A. Eckart to W.D. Patterson, April 7, 1936, copy in ACWD Board Minutes, Volume 3, April 14, 1936, pp. 366-367.
- ⁴⁴ Minutes, ACWD Board of Directors, Volume 3, April 14, 1936, pp. 366-369.
- ⁴⁵ Agreement between Alameda County Water District and the City and County of San Francisco, September 24, 1936, ACWD historical records, box 4003.
- ⁴⁶ Minutes, ACWD Board of Directors, Volume 4, March 5, 1938, p. 20; Volume 3, April 17, 1937, p. 425 and May 15, 1937, p. 432.
- ⁴⁷ Charles West, "Groundwater Resources of the Niles Cone, Alameda County," a report prepared for the Federal Land Bank of Berkeley, CA, November 1, 1937, pp. 48-49.
- ⁴⁸ West., p. 2.
- ⁴⁹ Minutes, ACWD Board of Directors, Volume 3, April 3, 1937, p. 421.
- ⁵⁰ Minutes, ACWD Board of Directors, Volume 3, July 17, 1937, p. 443; August 7, 1937, p. 446; and November 5, 1937, p. 457.
- ⁵¹ Caswell, Patterson Oral History, second interview transcript, p. 8.
- ⁵² Minutes, ACWD Board of Directors, Volume 3, November 5, 1937, p. 457.
- ⁵³ Minutes, ACWD Board of Directors, Volume 4, February 5, 1938, pp. 8-9.
- ⁵⁴ Minutes, ACWD Board of Directors, Volume 4, May 7, 1938, p. 37.
- ⁵⁵ Minutes, ACWD Board of Directors, Volume 4, June 4, 1938, p. 41.
- ⁵⁶ "Champion of Water Rights Passes Away as Township Project Nears Completion," *Township Register*, July 7, 1939.
- ⁵⁷ Minutes, ACWD Board of Directors, Volume 4, February 1, 1941, p. 216.
- ⁵⁸ John Caswell, *Alameda County Water District, the First Four Decades*, Alameda County Water District (Palo Alto, CA, 1956), p. 67.
- ⁵⁹ Minutes, ACWD Board of Directors, Volume 4, August 5, 1939, p. p. 126; Lage, Whitfield Oral History, p. 16.
- ⁶⁰ Minutes, ACWD Board of Directors, Volume 4, May 6, 1939, p. 103.
- ⁶¹ Minutes, ACWD Board of Directors, Volume 4, June 7, 1941, p. 226.
- ⁶² Minutes, ACWD Board of Directors, September 6, 1941, p. p. 239.
- ⁶³ Minutes, ACWD Board of Directors, Volume 5, February 10, 1945, p. 49.
- ⁶⁴ Eden Township County Water District vs. City of Hayward, Alameda County Superior Court No. 118,967, brief on behalf of plaintiff Eden Township County Water District, May 1931, p. 22. Eden Township County Water District records, ACWD historical records, box 3129.
- ⁶⁵ Charles H. West, p. 34.
- ⁶⁶ *Eden Township County Water District v. City of Hayward*, Alameda County Superior Court No. 119,967, Plaintiff's Brief, p.23, ACWD historical records, box 3129.
- ⁶⁷ *Eden Township Water District v. City of Hayward*, Plaintiff's Brief, p. 24.
- ⁶⁸ Letter from Claude Silva, Eden Township Water District Secretary to Frank Coakley, Alameda County District Attorney, September 22, 1952, ACWD historical records, box 3132.
- ⁶⁹ *Eden Township Water District v. City of Hayward*, 218 Cal 634, pp. 638-41. August, 1933.
- ⁷⁰ Minutes, ACWD Board of Directors, Volume 4, March 5, 1938, p. 19.
- ⁷¹ Minutes, Eden Township County Water District Board of Directors, September 13, 1938, p. 3, ACWD historical records, box 3131.
- ⁷² Minutes, ACWD Board of Directors, Volume 5, June 5, 1943, p. 3.
- ⁷³ Minutes, ACWD Board of Directors, Volume 5, July 14, 1945, p. 68.
- ⁷⁴ Letter from George Clark to C.W. White, August 5, 1945, ACWD historical records, box 4005.
- ⁷⁵ Letter from C.W. White to George Clark, August 2, 1945, ACWD historical records, box 4005.
- ⁷⁶ Minutes, ACWD Board of Directors, Volume 5, June 6, p. 80.
- ⁷⁷ Minutes, ACWD Board of Directors, Volume 5, August 3, 1946, p. 83.
- ⁷⁸ Minutes, ACWD Board of Directors, Volume 5, September 7, 1946, p. 85.
- ⁷⁹ Lage, Whitfield Oral History, p. 22
- ⁸⁰ Minutes, ACWD Board of Directors, Volume 4, March 28, 1942, p. 265.
- ⁸¹ Minutes, ACWD Board of Directors, Volume 5, November 4, 1944, p. 45 and April 6, 1945, p. 74.
- ⁸² Lage, Whitfield Oral History, p. 51.
- ⁸³ Minutes, ACWD Board of Directors, Volume 5, September 1, 1945, p. 60.
- ⁸⁴ Minutes, ACWD Board of Directors, Volume 5, March 2, 1946, p. 71 and June 24, 1947, p. 106.
- ⁸⁵ Minutes, ACWD Board of Directors, Volume 5, April 12, 1947, p. 100.
- ⁸⁶ "Water District Reveals Supply Problem Acute," *Township Register*, June 27, 1947.
- ⁸⁷ Minutes, ACWD Board of Directors, Volume 5, March 10, 1947, p. 98.
- ⁸⁸ "Water District Rejects Reservoir Proposal; Have Three Alternatives," *Township Register*, August 15, 1947.
- ⁸⁹ Minutes, ACWD Board of Directors, Volume 5, October 11, 1947, p. 113.
- ⁹⁰ "Alameda Water District Favors Reber Plan," *Township Register*, October 24, 1947; "Patterson Says Reber Plan Only Hope for Water," *Township Register*, February 20, 1948; and Minutes, ACWD Board of Directors, Volume 5, May 8, 1948, p. 132.
- ⁹¹ Minutes, ACWD Board of Directors, Volume 5, August 14, 1949, p. 139.
- ⁹² "Water District Directors Reject Reservoir Proposal; Have Three Alternatives," *Township Register*, August 15, 1947, and "Water District Seeks State Aid for Reservoir," *Township Register*, December 12, 1947.
- ⁹³ "Water District Seeks U.S. Aid," *Oakland Tribune*, December 23, 1947.
- ⁹⁴ "Water District Cites Danger to Local Wells," *Township Register*, November 28, 1947.
- ⁹⁵ "Lack of Rainfall Causes Early Irrigation Here," *Township Register*, January 30, 1948.
- ⁹⁶ "Water Shortage Reaches Point of Desperation for Local Farmers," *Township Register*, August 6, 1948.
- ⁹⁷ Minutes, ACWD Board of Directors, Volume 5, January 17, 1948, p. 122.
- ⁹⁸ "Begin Work to Control Flow of Alameda Creek," *Township Register*, February 13, 1948.
- ⁹⁹ Minutes, ACWD Board of Directors, Volume 5, July 10, 1948, p. 137.
- ¹⁰⁰ "District Rushes Work on Percolation Pit," *Township Register*, October 15, 1948.
- ¹⁰¹ "Niles Water Conservation Project Nears Completion," *Oakland Tribune*, December 25, 1948.
- ¹⁰² Minutes, ACWD Board of Directors, Volume 5, February 14, 1948, p. 123.
- ¹⁰³ "Niles Water Conservation Project Nears Completion," *Oakland Tribune*, December 25, 1948.
- ¹⁰⁴ "Serious Water Shortage Threat to Truck Farming in Township," *Township Register*, May 6, 1949.
- ¹⁰⁵ "County Drainage District Plan Gets Cautious Support Here," *Township Register*, February 4, 1949.
- ¹⁰⁶ Minutes, ACWD Board of Directors, Volume 5, January 8, 1949, p. 155; February 12, 1949, p. 159.
- ¹⁰⁷ Minutes, ACWD Board of Directors, Volume 5, March 9, 1949, p. 164.
- ¹⁰⁸ "County-wide District Gains Support Here," *Township Register*, May 13, 1949.
- ¹⁰⁹ "County-wide District Bill Passes Legislature," *Township Register*, July 8, 1949.
- ¹¹⁰ Caswell, Patterson Oral History, second interview, pp. 14-15 (quote on p. 15).
- ¹¹¹ Caswell, Patterson Oral History, second interview, pp. 15-16.
- ¹¹² Minutes, ACWD Board of Directors, Volume 5, July 22, 1949, p. 180.
- ¹¹³ Application No. 13279 to Appropriate Unappropriated Water, dated August 5, 1949, ACWD water rights records, box 664875.
- ¹¹⁴ Minutes, ACWD Board of Directors, Volume 5, August 13, 1949, p. 182.

General Manager Matt Whitfield stands beside Board President John Pihl (lower right) and District officials to announce the introduction of a new transmission line in June 1957.



Chapter 4 • 1950 to 1962: Growing Pains

During the mid-1950s housing had a growth spurt in the ACWD service area. On April 12, 1950, 200 homes were under construction in Newark; on May 20, the Board discussed subdivision plans for another 600 homes in Niles, and on June 14, the Board adopted a resolution that specified that sub-dividers provide all of the necessary “labor and material required . . . to comply to [sic] the specifications of the District.”¹

As the District’s priorities shifted from agriculture toward providing domestic and municipal services, the need for new policies to deal with the growing number of subdivisions was becoming apparent. This trend also highlighted the need to transition from Board member involvement in the day-to-day administration of the District to a more robust management team which could both recommend and implement policy initiatives. In September 1950 the Board hired Mathew Whitfield, Jr. to serve as the District’s Assistant to the General Manager.

By 1953, both Richmond and Engineer/Secretary Harrold had moved into semi-retirement, and Whitfield was appointed General Manager/Chief

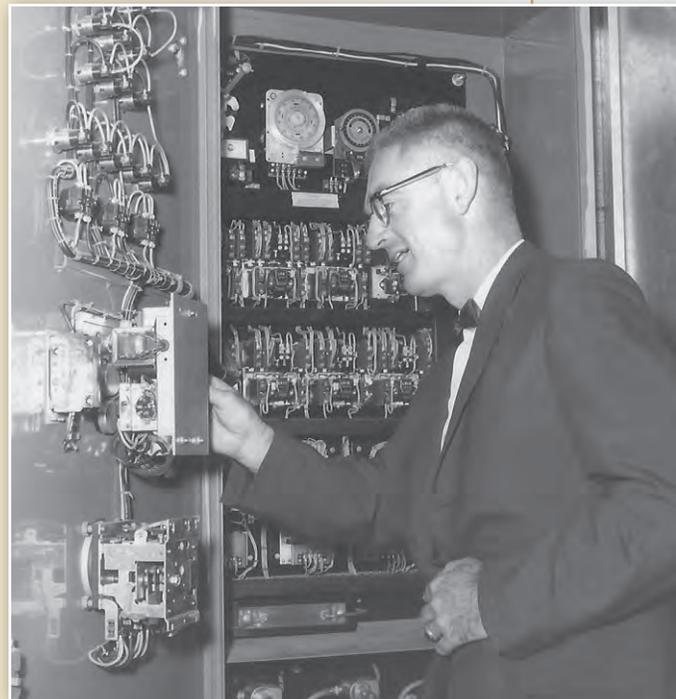
*“ . . . the antipodal twins
of increasing demand and
diminishing water supply
sit on our very doorstep.”*

– THE DAILY REVIEW EDITORIAL ON
ACWD, NOVEMBER 29, 1955

Matthew Whitfield

A mechanical engineer with a degree from Santa Clara University, Whitfield had grown up in the Mission San Jose area, and had several years of engineering experience with the Navy and in the private sector. He had recently left his last job when ACWD Board member and family friend Dr. E.M. Grimmer suggested that he explore working for the Water District. Grimmer told Whitfield that the Board was considering hiring a younger engineer because they knew “things are going to start growing around here,” and current General Manager Richmond was “getting on in years.”²

After interviewing with Board President Patterson and then with the rest of the Board, Whitfield was hired, with the charge to learn as much as he could about the District and water engineering, working both as Richmond’s assistant, as well as serving on the District’s engineering staff under A.E. Harrold.³



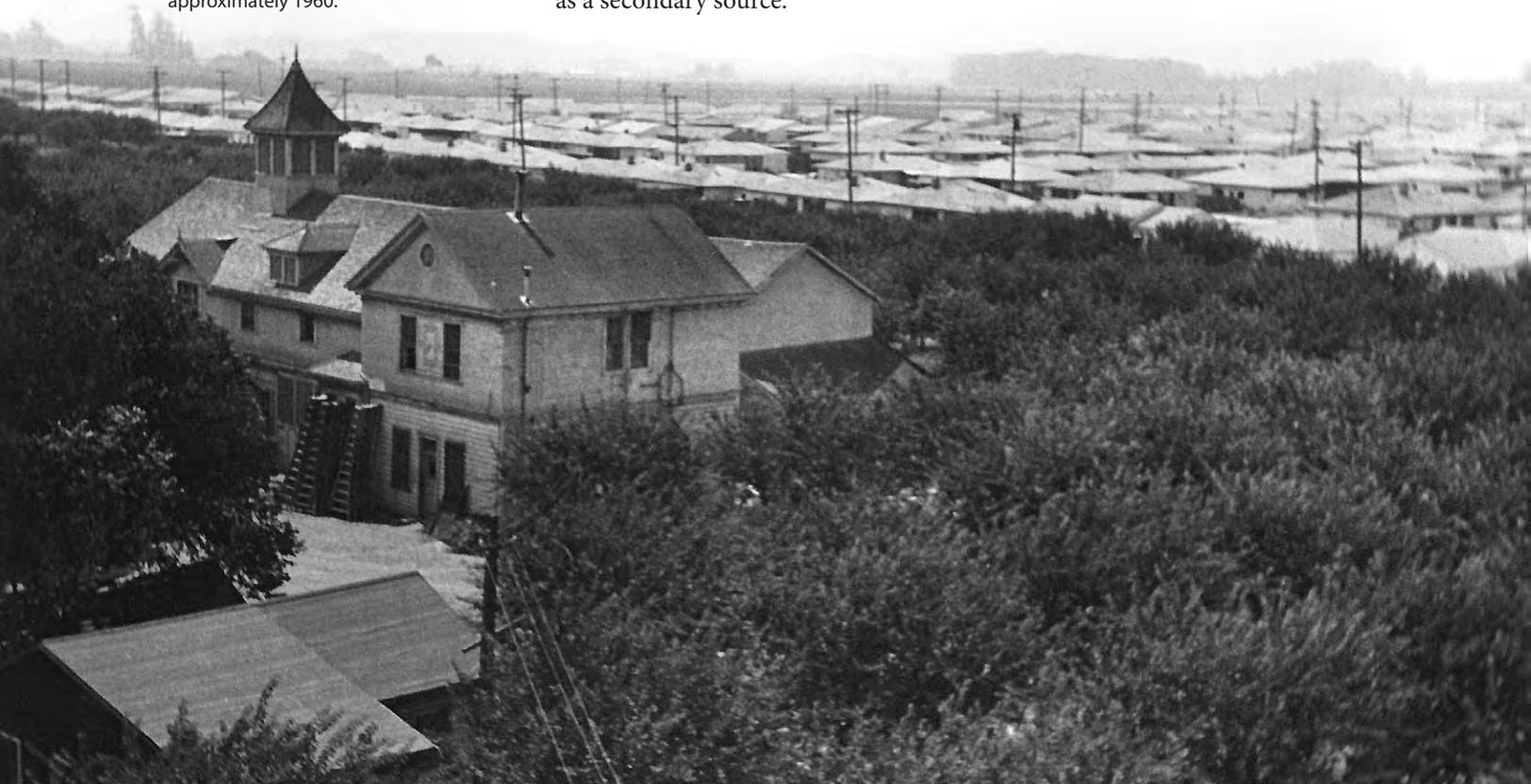
Matt Whitfield is shown at the sola-bridge control at the Willowood Water Softening Plant in 1961.

Engineer of the District. Whitfield would serve in this capacity until his own retirement in 1977. During this time, he would oversee the District's transition from a small, primarily agricultural district with 2,000 customers to a full-service urban water agency that was adding several thousand new customers per year throughout the 1950s.

The transition to municipal and domestic service was not always a smooth one. At the May 21, 1952, meeting of the Board, a residential developer asked the District to provide service to at least thirty new homes that he was building in Newark. While the directors did vote to approve the request and instructed the engineering department to extend water mains to the area, the Board also voted at the same meeting to appoint a committee "to investigate the extension of water mains in the District, especially for subdivisions, with a view to determining a consistent policy to follow in the future."⁴

Not all developers were so accommodating about asking the District to deliver water to their developments. Some believed that they could provide water service to their new housing tracts from less expensive sources. One such company was Conway and Culligan (C&C), which in 1954 proposed to build 1,200 new homes in Irvington. A dispute soon arose over the District's desire to have the company install mains that were oversized for the needs of the housing tract to support future anticipated developments in the same area. Even though the District offered to pay the additional cost for the larger pipelines, C&C balked, believing the District's requirements to be onerous and too expensive. C&C instead proposed to drill its own wells in the groundwater basin and create a mutual water company to provide water to the homes. C&C also proposed to use Hetch Hetchy water as a secondary source.

Subdivision development backed up to the orchards of Sycamore Farm in Centerville. The photo was taken from the Bunting pump house in approximately 1960.

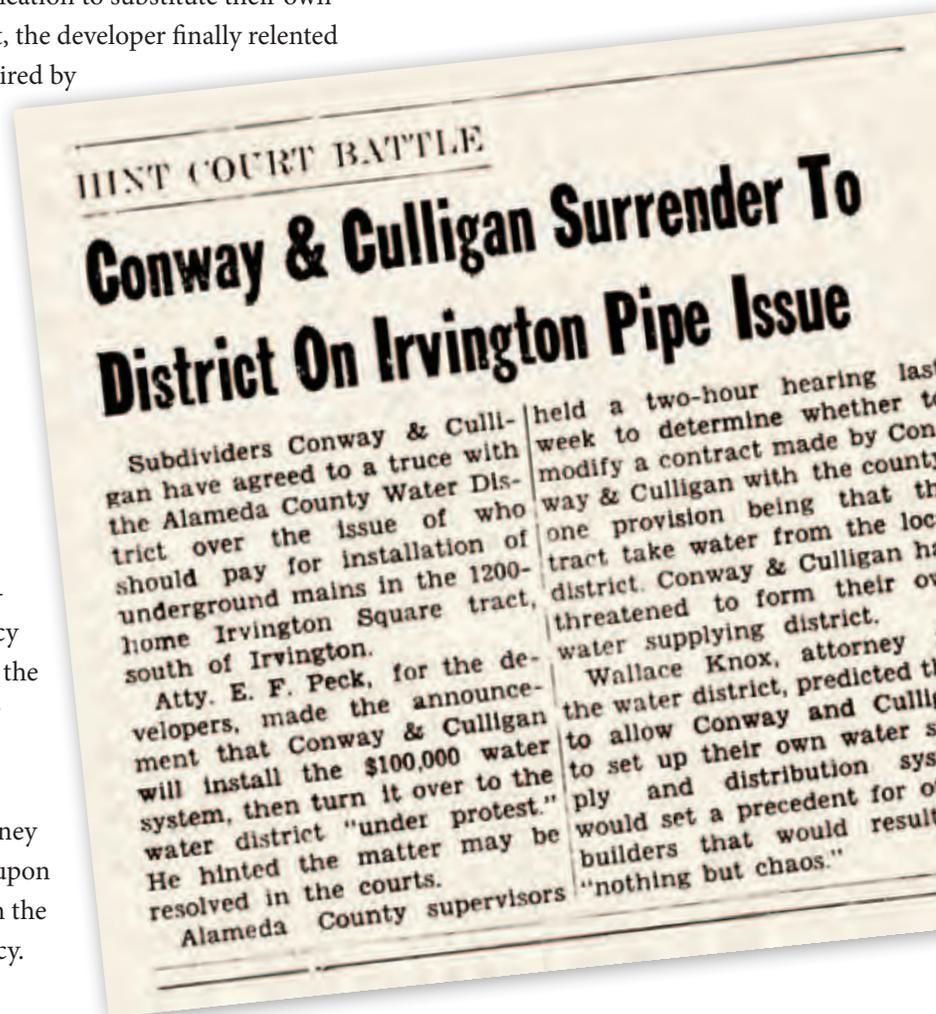


In June 1954, the District announced that it intended to block the company's water service plan because the proposed wells would tap the same underground source as the District. This would essentially put the District in the position of supplying a competitor with water that it had recharged into the underground aquifers for the benefit of its own customers. To further persuade C&C to use the District's services, the Board signaled its intention to protest to the San Francisco Public Utilities Commission the company's proposal to use the Hetch Hetchy system as a back-up, and to register protests with the Alameda County Board of Supervisors and with the County Planning Commission.⁵

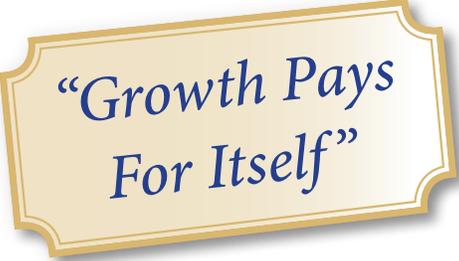
Fearful of losing approval of their subdivision by the Board of Supervisors, which in September 1954 denied C&C's application to substitute their own mutual water company for the Water District, the developer finally relented and agreed "under protest" to the terms required by ACWD to supply it with water. According to the *Township Register*, the company had strongly implied that it might go to court to obtain a more favorable resolution. The *Register* also reported that the District's Directors believed that if they had not objected to the company's plans to set up a private water distribution system, it would have set a dangerous precedent and a potentially chaotic situation within the District's service area.⁶

The conflict with Conway and Culligan highlighted the need for a consistent written policy that could be applied to new development in the District. The Board tasked General Manager Matt Whitfield, engineering consultant T.C. Binkley, who had been retained to assist the District with long-range planning, and Attorney Morris Hyman, who replaced George Clark upon his retirement from the District in 1954, with the job of developing such a comprehensive policy.

After six months of effort, the result was presented to the Board in May 1955 in the form of Resolution No. 81. Comprehensive in scope, the resolution, according to Whitfield, "was the future format and the bible on how we were going to pay for things: who was going to pay for water mains, whether there was going to be reimbursement . . . and all that."⁷



When the township was rapidly growing in the 1950s, one of the questions ACWD faced was, "Who pays for growth?" One developer wanted to avoid paying for connections and drill its own wells to provide water to the homes it built. Alameda County supervisors denied the proposal.



“Growth Pays For Itself”

In 1955 the District adopted a resolution that established a comprehensive policy about growth. The Board adopted the principle, “Growth pays for itself” in expanding the distribution system to accommodate new developments.

The basic charges were of three different kinds: a charge for installing a service line and meter, a requirement that developers take responsibility for all in-tract water mains except those which would qualify for a District contribution, and an acreage or front-foot charge for new service connections. These latter charges would be collected and placed in an account to reimburse developers for their cost of installing mains that were larger than required for their development to accommodate future growth; eligibility for reimbursement would be limited to a ten-year period after the date of original installation. To the extent that additions to the distribution system would be paid for by developers exclusively, the principle of “growth pays for itself” was established. However, these charges as originally set would not allow the District to accumulate funds in sufficient quantities to pay for major facilities improvements, such as additional storage and water supplies, which anticipated growth in the District would also require.

With growth, the need for a comprehensive long-range capital improvement and financing plan was becoming clear, especially to the District’s consulting engineer T.C. Binkley, whose thoughts were summarized in the August 27, 1953, minutes of the directors’ meeting:

“... the supplying of the additional water for all of the District’s purposes was the main consideration. He believed that the possibility of pumping should be considered. He referred to the need for additional reservoirs, and the possibility of obtaining sites for reservoirs was discussed as was the need for re-charging of the underground supply of the District.”⁸

In spite of Binkley’s urging that the District develop a comprehensive long-range plan, little was accomplished by the summer of 1954, when the unsettled state of the Board of Directors concerning the District’s future water supplies was reflected in this exchange between Board members:

“Mr. Amaral stated that it was his feeling that the District should abandon underground pumping and get all its water from the City of San Francisco. Dr. Grimmer stated that he was in favor of this policy. Mr. Amaral stated that he felt that we should study our present policy because we do not have sufficient working capital. Mr. Patterson stated that this was too important a matter to decide on the spur of the moment and that a considerable study be given it. . . . Dr. Grimmer suggested that the rapid expansion that the District is facing requires a very careful study, perhaps bonding the district or raising money by some additional means. Mr. Binkley suggested further study of the problem of securing additional percolation areas.”⁹

It would not be until June 1955 that the Board finally authorized Binkley to proceed with a master planning study, which would be divided into two parts. The first, a Water Supply and Distribution Study, would form the basis for submitting a bond issue to the voters to finance the recommended capital improvements. It would deal primarily with distribution storage reservoirs and transmission lines. The second study, a Water Conservation Study, would deal with the waters of Alameda Creek, the problem of salt-water pollution, and ways to reclaim the groundwater basin. This included the possibility of importing waters from the San Joaquin Valley and delineating the desired routes for any aqueducts needed for this purpose. According to Binkley, the study would include an analysis of the capacity of the Niles Cone gravels, including methods and costs for “recharging these gravels when [a supplemental water source] will be available. This study will guide the District in selecting and procuring spreading grounds, gravel pits, etc., with the long-range objective of replenishing the ground waters.”¹⁰

The District’s rapid growth during the 1950s not only produced conflicting opinions among the District’s directors about how best to meet future demands, the increasing urbanization of the area also caused discord among the District’s water users as they competed for scarce supplies. This in turn complicated the District’s ability to create a comprehensive development plan that provided for domestic and municipal supplies as well as agricultural irrigation.

One of the more contentious issues to emerge during this time focused on the use of the Soito well. The Water District had drilled this well west of Newark in the spring of 1954 to improve domestic service to that city. Not long afterward, farmers near Newark began complaining that pumping from the new well was causing water levels in their own wells to drop and was allowing salt water to intrude into the aquifers.

Acknowledging that the new facility was supplying about seventy-five percent of Newark’s needs, General Manager Whitfield told the *Township Register*, “We’re watching it. If the farmers’ wells are affected, we’ll curtail operations.”¹¹

Regardless of Whitfield’s assurances, the farmers grew more restive when District officials demurred on signing a contract that would have guaranteed that if water levels in the farmers’ wells dropped fifteen feet, the District would curtail pumping at the Soito well. L.J. Milani, one of the affected farmers, observed that the well operated twenty-four hours a day, and warned, “We’re hiring a lawyer. Beets can’t live on salt water.”¹²



District crews were busy in the 1950s and 1960s keeping up with growth. In this photo, a district employee installs a water meter in a new subdivision in 1961.

Carrying out his threat, Milani and other Newark-area farmers did file suit against the District, successfully obtaining an injunction against operating Soito well. The Board of Directors directed Matt Whitfield and T.C. Binkley to attempt to reach a settlement with the plaintiffs, and Binkley subsequently presented a plan for ending the controversy that would have limited District pumping at the well to 110-acre-feet per year. When engineers for both sides agreed to this solution, the injunction against pumping Soito well was lifted. However, the plaintiffs in the *Milani* case refused to accept the proposed settlement.

DECISION REVERSED

Water Men Row On Soito Well; Hetchy

Climaxing a three-way verbal Donnybrook, directors of the Alameda County Water District last week temporarily reversed their recent decision to abandon a controversial well near Newark, and also agreed to forget the issue of converting the district to 100-percent use of Hetch-Hetchy water.

Director W. D. Patterson successfully reopened the subject of the Soito well, at Mayhews Landing and Haley Roads. This is the well three other directors voted to abandon one month ago when 23 neighboring farmers obtained an injunction against it.

Patterson and Engineer Thaddeus C. Binkley warned the Soito well abandonment might set a precedent which would open the door for farmers anywhere to halt district pumping, if they think it is depleting their private water supplies.

Patterson wanted the decision reconsidered until legal advice can be obtained from the district's new attorney, E. A. Quaresma.

Directors Louis Amaral, Manuel J. Bernardo and E. M. Grimmer previously had outvoted Patterson and Director Jack Prouty on the issue.

"You conceded defeat when you had the case won," Binkley charged. He was backed up with

figures by Matt Whitfield Jr., general manager for the district, who contended the well didn't lower the farmers' water levels.

Amaral challenged Whitfield's figures, and Dr. Grimmer opposed any move which, he said "would lead to a fight over an old dry hole." He declared the district "has no business in there anyway."

Whitfield and Binkley exploded. Said Whitfield: "You ought to rely on our information"

Amaral replied he preferred to believe the farmers. Binkley seconded Whitfield with the words:

"You refuse to accept engineering facts. We simply have no business abandoning the well"

Finally Patterson's will prevailed and the board agreed to reconsider the abandonment un-

(Continued on Page 5)

The Board members themselves were deeply divided over whether to start pumping the Soito well again, or to instead purchase additional Hetch Hetchy water to supply Newark. Directors Prouty and Patterson supported pumping the well; both because the District had gone to considerable expense to drill it, and because purchasing Hetch Hetchy water would be more expensive than pumping the well. Both held that the district should firmly establish the principle that it had a right to pump water from underground sources to serve the District's customers. Reflecting the apparent dissension among the directors on this issue, a vote favoring closure of the Soito well and purchasing additional Hetch Hetchy water passed by a three-to-two margin.¹³

Matters did not end there, however. Under the headline, "Water Men Row on Soito Well, Hetchy," the *Township Register* reported on August 5, 1954, barely two weeks after the decision to close the well down, that the Board had reversed its original decision. The newspaper supported this decision, stating that the Board had properly reversed its original course of action because they believed closing the well permanently might create a dangerous precedent that could allow anyone in the service area with a private well to compel the District to close its wells. The directors decided, according to the *Register*, that a final action on the Soito well would be delayed pending receipt of a legal opinion from the District's attorney.¹⁴

Residential growth heightened competition for water in times of drought. The issue came to the forefront in 1954 when the District pumped water to new residents in Fremont, affecting local farmers.

One month later, the District's legal counsel, E.A. Quaresma, advised the Board that pumping at the Soito well was entirely legal. Quaresma based his opinion on the fact that the District had been using groundwater in the area for more than twenty years, thus giving the District prescriptive rights to underground supplies, and giving the District legal right to even drill additional wells.¹⁵

In spite of Quaresma's opinion, the District did not immediately resume pumping of the Soito well, and in September 1954, the District and the

plaintiffs in the *Milani* case agreed to a stipulation dismissing the lawsuit.¹⁶ The Board then waited until November 1954 to resume operations at the well, by which time northern California's rainy season had begun, and with precipitation available, groundwater use for irrigation purposes would be curtailed. By November 1954, engineer Binkley reported to the Board that the Soito well was no longer having an adverse effect on groundwater levels in the area, pumping at 100,000 gallons per day while groundwater levels in surrounding wells were rising.¹⁷

With the Soito well issue sufficiently resolved for the moment, the Board and staff of the District renewed their efforts to deal with the demands that anticipated growth would place on the District, including the need for additional water supplies in the future. This took on new significance when T.C. Binkley advised the Board that they would need to dramatically expand the District's water service capacity.

By late 1955, Binkley had completed his report on the District's existing status and potential needs, breaking down his recommendations into both short-term and long-term objectives. Binkley recommended installing at least five more wells around the District over a two-year period. He also called for the construction of new reservoirs that would be capable of storing 200 million gallons of water to supply distribution system demands. Binkley also concluded that the District would need to install large mains throughout the region to keep up with demands.¹⁸

Binkley's report had an immediate impact on the ACWD Board. Following receipt of the study, the directors began considering a multi-million dollar general obligation bond issue to finance the recommended improvements, which were estimated to cost \$4.3 million. It would be the first bond issue presented to the voters since the 1930 election to determine whether or not the District should purchase the Alvarado Pumping Station from the East Bay Municipal Utilities District (as it was named in 1930).

At a public hearing on the bond issue on November 30, 1955, several members of the Newark City Council and the Union City Formation Committee (consisting of representatives of the Alvarado and Decoto districts, which were still unincorporated) appeared to speak. Newark Councilmember Clark Redeker asked about improvements in the Newark area, while Frank Borghi, a member of the Union City Formation Committee, asked why the Decoto and Niles areas were to be excluded from the proposed Improvement District No. 1. (Both Redeker and Borghi would be appointed to Water District Board member vacancies by the early 1960s.)

The reason for excluding Niles and Decoto from the improvement district was that these areas were still served by a private water company, the

Citizens Utilities Company, the last remaining private water company in ACWD's service area. The Board of Directors determined that Niles and Decoto should continue to be excluded from the proposed improvement district but that the District should also try to determine Citizen Utility's willingness to sell its system to the District and at what price.¹⁹ The issue of the purchase of this private water system would continue to be considered by the Board of Directors well into the 1970s, as public pressure to take over the system mounted as a result of chronic water quality and service concerns. Upon conclusion of the November 30 public hearing, a bond election was set for April 2, 1956.

In the heavy rains of Christmas Eve 1955, Alameda Creek overflowed its banks in the Niles and Alvarado areas, submerging fifteen square miles of residences, businesses, and farmlands. Flood waters broke through a levee at a percolation pond and then flooded Union City. The flood brought about new policies and a turnover on the Board of Directors.

Consideration of the proposed bond issue soon took a back seat to more pressing concerns during the winter of 1955-56, when winter storms resulted in the greatest flood on record in northern and central California, inundating 100,000 square miles, taking 64 lives and causing more than \$200 million in property damage.²⁰ Locally, flooding occurred in the unimproved Alameda Creek channel in December 1955. On Christmas Eve,



heavy rains caused the creek to overflow its banks in the Niles and Alvarado areas, putting at least fifteen square miles of residences, businesses, and farmlands under as much as four to five feet of water.²¹

The flood waters broke through a levee between the creek and the District's Shinn Pit percolation pond, and then moved out in two directions. They ultimately flooded the Pacific States Steel facility in Union City, as well as the newly occupied Shinn subdivision, consisting of approximately 300 "ranch style buildings in the \$20,000 bracket," with residents evacuated to an emergency center at Washington High School. The main levee breach occurred approximately 300 feet from I Street in the Niles District. By early January 1956, the District had executed an agreement with the Army Corps of Engineers to temporarily repair the breach, and work was begun immediately. By the end of the month, Matt Whitfield reported that the levee had been raised over two and one-half feet above the high-water mark that resulted in the 1955 flood.²²

The Alameda Creek flood of December 1955 caused the worst damage in a series of floods in recent years, including the winters of 1950 and 1951, which highlighted the need for flood control in the creek area extending from the mouth of Niles Canyon to the San Francisco Bay. Ironically, a bond issue was passed in early 1955 which approved \$4 million for the reconstruction of this twelve-mile section of Alameda Creek. Will Patterson had championed this reconstruction effort since his appointment as Chair of the Alameda County Flood Control and Water Conservation District in 1949.²³ By August 1955, the project was awaiting Congressional approval of an additional \$5 million appropriation for the project to the Army Corps of Engineers. Congress had already authorized \$15,000 for the Corps of Engineers to conduct a preliminary survey for the widening project.²⁴ Congressional approval finally came after the December 1955 floods, and work progressed on design of the widening of the channel from less than 100 feet to 300 and up to 600 feet in some locations, as well as on development of a flood control master plan for the Tri-City area.

By early August 1956, the ACWD Board had appropriated \$25,000 to make the permanent improvements needed to reduce the risk of future flooding, including raising the Shinn Pit levee by four feet over the December 1955 flood crest level.²⁵ The work was completed by October 1956. More immediately, the flooding of the Pacific States Steel plant caused the first change in the makeup of the Board of Directors since J.C. Shinn was defeated in his reelection bid in 1942.

John G. Pihl was the manager of the Pacific States Steel plant, then one of the largest employers in Washington Township, and he ran for a seat on the Board of Directors in the March 1956 election, beating incumbent Louis



John G. Pihl
ACWD Director 1956 – 1960



Keith Whipple
ACWD Director 1956 – 1958

Construction of Middlefield Reservoir was approved in 1956. It was the district's first in-ground, covered storage facility and, like many of the District's reservoirs, is located near neighborhoods, as this early '60s photo shows.



Amaral, who had served on the Board since 1941. At the same election, Dr. E.M. Grimmer was reelected to his seat on the Board. Grimmer had also been appointed President of the Board in 1954, after Will Patterson declined to serve as President, citing health concerns, and after serving as Board President since the mid-1930s (he was subsequently elected as the Board's Vice-President).

At the same election, voters handily passed the \$4.3 million in Improvement District 1 bonds: 1,914 to 541.²⁶ The following month, as Pihl assumed office as a Board member, he was elected Board President.

By January 1957, the Board began considering staff's recommendations on needed capital projects to address existing and future growth. Of the \$2.3 million approved by the voters in March 1956, the Board set aside \$1.02 million for construction of the 7.5-million-gallon Middlefield Reservoir and a 5-million-gallon reservoir in Niles, as well as reserving \$150,000 "to be held . . . to meet industrial expansion that may arise within the area to be served by the immediate program outlined."²⁷ By April 1957, the Board acted to authorize the first sale of \$1.4 million in bonds to finance proposed capital projects out of the approved bond issue.²⁸

The Board suffered another loss in October 1956, when Dr. E.M. Grimmer died. He had served on the Board since 1932. Grimmer's leadership on the Board during his years of service was pivotal, both in his emphasis on public health protection and in his support for recruiting a strong management and engineering staff to lead the District as it approached its period of greatest growth. By December 1956, the Board had selected Union City resident and local rancher Keith Whipple to complete Grimmer's remaining term of office.

With Pihl installed as Board President and Whipple appointed to fill the remainder of Dr. Grimmer's term, the Board had no sooner entered the new year 1957 before another change on the Board occurred, this one precipitated by a change in residence rather than a death. At the March 29, 1957, Board meeting a concern was raised regarding the legality of Director Jack Prouty's residence. Prouty had recently relocated to an area in Warm Springs that had not yet been annexed into the Water District's service area.

After considerable debate, a motion was made to declare Prouty's seat vacant. It appears that the main concern was that Prouty's relocation might have, in some way, invalidated actions taken by the Board after he moved, especially as it related to the recently passed Improvement District No. 1 bond issue. It also appears that there was friction between Prouty and Director Pihl, focusing on their relationship with the owner of Pacific States

Steel (Joe Eastwood) and which of them properly represented Eastwood's interests on the Board, since Pihl was the manager of the steel plant and worked for Eastwood.²⁹

Whether or not it was petty rivalry, legal concerns, or a combination of both, Prouty was summarily voted off the Board after an initial deadlock of two to two; the final vote was three to one, with Director Patterson still voting “no.” Prouty's seat would remain vacant for four months, and was finally filled on July 15, 1957, with the appointment of George O. Latham of Fremont, just before the appointment would have defaulted to the Alameda County Board of Supervisors for action.³⁰

By 1958, the District staff had grown from four employees in 1950 to thirty-seven employees, and renting office and corporation yard space was no longer a viable option. Anticipating future growth, in 1953 the District purchased 8.5 acres of land on Fremont Boulevard near the intersection with Central Avenue for a future office/corporation yard site. Ever since the District was formed in 1914, it had no official offices. Initially, meetings were held at “Stevenson Hall” in Centerville. When the Alvarado Pumping Plant was purchased in 1930, business was conducted out of a small office on the plant site. Later, the District operated out of a small building on Bonde Way near the railroad tracks in Centerville, and then from space rented from Alameda County on Peralta Boulevard.³¹

Construction of a new headquarters site at the Fremont Boulevard location commenced in September 1957 and was completed by May 1958. With 10,000 square feet of office space, warehouse, and shops, this location would ultimately house District staff until 1985. The building was designed by



This vintage ACWD precinct map was framed and displayed in the home of the Board's first president, J.C. Shinn.

Peter Jacobsen, a young Washington Township architect, who borrowed themes from Frank Lloyd Wright.



George O. Latham
ACWD Director 1957 – 1962

Just prior to the March 1958 election, Director Will Patterson announced his intention to retire from office after forty-four years of service, including twenty years as President, from 1934-54. The last of the originally elected Board members to leave office, Patterson was also the last of the large landowners in the area to serve on the Board. According to Matt Whitfield, he was a “peacemaker type of man” who always sought harmony and unity on the Board.³²

In the March 1958 election, Patterson was succeeded by previously serving Board member Louis Amaral, who had been defeated by John Pihl in the 1956 election. Manuel J. Bernardo and George Latham were also reelected. In October 1958, yet another change on the Board was precipitated by Keith Whipple’s resignation after serving less than two years in office. The Board appointed Bernie Joseph to fill out the remainder of Whipple’s term. Like Whipple, Joseph was a resident of the Decoto District.³³ By the March 1960 Water District election, Ralph Logan would be returned to office, but Director John Pihl would lose his seat to Fremont insurance agent

Jake Smith stops by the ACWD office in 1958 to pay his bill and have his payment booklet stamped. Daily receipts were tallied on an adding machine, and staff were connected via a corded switchboard (background).



and Water Advisory Committee member William Humpert. Humpert campaigned on a platform promising to lower water rates and to import a greater amount of softer San Francisco water supplies into the District.³⁴

As the transition from agricultural lands to suburban tract homes continued in the 1950s and as municipal demands overtook irrigation uses, the protection of the water quality of the Niles Cone Groundwater Basin took on increased importance. During the 1950s, two issues arose relating to water quality, one external and the other internal to the District, which were destined to occupy the Board's and staff's attention for the next several years.

The external threat involved growth in the Livermore-Amador Valley, which encompasses the Livermore-Pleasanton-Dublin area in eastern Alameda County. The Livermore-Amador Valley comprises a significant portion of the Upper Alameda Creek Watershed. Various creeks and arroyos in the area ultimately drain into Alameda Creek, a portion of which runoff was captured and diverted by the Water District to replenish the groundwater basin.

One aspect of growth in the Livermore-Amador Valley had a potentially negative impact on the District's groundwater recharge operations. This involved the increased discharge of treated wastewater effluent from the Livermore-Amador Valley area as more homes and industries moved into the area. This effluent was discharged directly into creeks and flood control channels, which ultimately found their way into Alameda Creek. The effluent was diluted with rain water runoff during the winter months, but not during the dry summer months. As early as 1955, it was reported that the San Francisco Bay Regional Water Pollution Control Board (WPCB – the predecessor to today's Regional Water Quality Control Board) was investigating Alameda Creek to determine whether or not there was water pollution stemming from these discharges.

At the September 25, 1955, Board meeting, concern was expressed over wastewater treatment plants “that release their water into Alameda Creek are not being properly maintained,” and suggestions were made that the WPCB be requested to establish standards to assure the “perpetual existence of these plants.”³⁵ There appears to have been some initially mixed feelings among the Board members as to whether or not to engage on this issue. A motion passed on September 28, 1955, to “oppose the creation of any sewage disposal units” in the Valley was subsequently rescinded on October 13, 1955.³⁶

By July 1956, however, discussions regarding the City of Pleasanton's wastewater effluent discharge permit resulted in the unanimous adoption



Bernie Joseph
ACWD Director 1958 – 1959



Ralph Logan
ACWD Director 1959 – 1962



William Humpert, Jr.
ACWD Director 1960 – 1966

of a motion urging the WPCB to set standards sufficient to “protect the underground supply entering the Niles Cone.”³⁷ By 1959, after presentation of a report entitled “Industrial Waste Disposal in Southern Alameda County,” the Board believed, according to Director Amaral, “Livermore should pipe their sewage, at their own expense, to the Bay, so that it does not come into our stratas [groundwater basin].” At the time, General

Manager Whitfield affirmed that District staff would continue to watch water quality in the Niles Cone and take whatever action was necessary to protect it; District Counsel Hyman further stated that, while there was no current evidence of water quality deterioration, “the Water District has their right of action if such deterioration does develop in the waters of Alameda Creek.”³⁸

Within two years, the Board’s position on discharges from the Livermore-Amador Valley had evolved to the point where resolutions were adopted which: 1) urged Alameda County to adopt adequate controls over industrial waste discharges, and to “withhold zoning or rezoning of said lands for industry until such regulations are in effect;”³⁹ and 2) urged early adoption and implementation of a valley-wide collection and disposal system for this watershed, and not permit development unless these integrated facilities “convey sewage effluent by conduit from Livermore Valley to tidal waters” of San Francisco Bay.⁴⁰ This would remain the Board’s policy throughout the 1960s and 1970s, while the District actively advocated making it a reality.

The second water quality concern involved the growing numbers of wells abandoned in the

District’s service area as former agricultural lands were converted to residential housing tracts. Discussion at the June 26, 1958, Board meeting centered on the difficulty of “securing the engineering information necessary to demonstrate pollution from defective wells.”⁴¹ There was no state agency with the power to control proper well drilling and abandonment standards. It had been determined that the District did not have the authority to adopt and enforce such standards, but that the cities in the service area, or the County of Alameda, might have the ability to adopt them through their local “police powers.” Accordingly, District Counsel Morris Hyman was directed to begin discussions with the three service area cities and with the County to further explore this possibility.⁴²

Bill Humpert, who was elected to the Board in 1960, campaigned for lower rates and softer water, notably more Hetch Hetchy water. By 1961 the District would have an entirely new, and less expensive, source of water.

51% Profits?— or Lower Rates?
 William F. Humpert, candidate for Director of the Alameda County Water District, says:
IF YOU LIVE IN FREMONT, NEWARK or UNION CITY-- Water RATES and Water QUALITY are a Real Concern to YOU and Your Pocketbook!

WHY?
 Because the rates charged by the Alameda County Water District—the agency that supplies most of this area—are **AMONG THE HIGHEST IN CALIFORNIA**. This is not hearsay. It was admitted by the District's own manager at the budget hearing in July, 1958. The manager added that "people complain terrifically". But the rates **HAVE NOT BEEN REDUCED**.

Could the rates be reduced? **YES.**
 A study by the water advisory committee of the City of Fremont recently showed the Water District made a 48.13 percent **PROFIT** in 1957 and a 51.58 percent **PROFIT** in 1958! Said the committee: "The people who are generating all this revenue so the District can make exorbitant profits are **average homeowners** who placed the directors in office."

Could softer water be supplied? **YES.**
 At the same budget hearing, homeowners pointed out that the Hetch-Hetchy pipeline, carrying pure soft Sierra water, runs right through Fremont, and that some homeowners would be willing to pay extra to get this "quality" water.

THE WATER BOARD CHAIRMAN CLOSED THE DISCUSSION, SAYING: "WE ARE WASTING TIME!"
TOO MUCH TIME HAS BEEN WASTED!
 The time has come for new water policies, ones which keep pace with our fast-developing cities. These new policies can only be developed with new directors, progressive, cooperative and responsive to the people's will.

Such a man is **WILLIAM F. HUMPERT**. This is what Humpert says about water rates:
 "A plentiful supply of reasonably-priced good-quality water is **ABSOLUTELY VITAL** to the continued growth of Fremont, Newark and Union City. I have worked toward that goal as a member of the City water authority, and I will continue to fight for better water at lower rates."

Something About BILL HUMPERT:
 Age 46
 Business: Insurance Agent
 Family: Wife; son, 7
 Background: San Jose State, banking, Air Corps in World War II.
 Former trustee, Irvington Elementary School District.
 Past President, Irvington Chamber of Commerce; Irvington Suburban.
 Member: FREMONT WATER ADVISORY COMMITTEE.

Humpert is pledged to:
 • **APPLY ACWD PROFITS TO CUT WATER RATES.**
 • **DEVELOP A DISTRICT POLICY MORE ENCOURAGING TO INDUSTRY.**
 • **UP-DATE DISTRICT POLICY, PERMITTING SALE OF IMPORTED SOFT WATER.**

FOR DIRECTOR
 Alameda Co. Water District

On Tues., Mar. 22 VOTE FOR WM. F. HUMPERT

An equally pressing groundwater quality problem involved the proliferation of “drain wells” in the District’s service area. These wells had been constructed to manage storm water runoff in the absence of a comprehensive storm drain system in the area. They consisted of a shallow well designed to allow storm runoff to flow by gravity into the groundwater basin. As early as 1954, the Board had initiated discussions on imposing a possible prohibition on drain wells because the wells potentially might serve as pathways for introducing a variety of contaminants into the groundwater basin, including both chemical contaminants as well as allowing for the migration of saline waters from the more contaminated upper (Newark) aquifer into the deeper aquifers (the Centerville and Fremont Aquifers). Developers strenuously objected to any possible ban on drain wells, since, from their perspective, this would result in a de facto ban on new housing developments in the area.

A January 6, 1955, special Board meeting called to determine whether to allow additional drain wells was attended by staff of the Regional Water

Trenching in the early '60s for new mains in an section of Washington Township that remained agricultural.



Pollution Control Board and Alameda County Flood Control, as well as numerous development interests. While the Pollution Control Board also opposed any further construction of drain wells beyond the forty-five already in existence, there was no practical alternative until flood control bonds could be passed that would finance construction of a storm drain system in the area.

A motion was finally passed that termed the drain wells a “temporary expedient,” allowing for additional drain wells until a permanent solution to storm drainage in the area could be implemented. This would continue to be the Board’s position until the eventual passage of flood control bonds in the late 1950s; meanwhile, development in the service area could continue unhindered.⁴³

By mid-1956, concerns over the potential for the spread of saltwater intrusion into additional areas of the Niles Cone Groundwater Basin as a result of unsealed and abandoned wells caught the attention of the San Francisco Bay Water Pollution Control Board, which recommended funding, jointly shared by the state and the District, to comprehensively study the causes and prevention of saltwater intrusion. By March 1957, with support from the three service area cities, \$254,000 had been appropriated by the state under a bill carried by Assemblymember Carlos Bee.⁴⁴ By July 1957, Department of Water Resources staff had commenced work on the detailed engineering and geologic analysis for the saltwater intrusion study. The

Shown below (in 1959) is the levee between Pit G and Pit B, where water was allowed to percolate through the gravels to recharge the Niles Cone.



study was completed by December 1960, when DWR Bulletin No. 81 was published, entitled “Intrusion of Salt Water into Groundwater Basins of Southern Alameda County.”

The study confirmed much of what was already known or suspected:

- that groundwaters [sic] of the Niles Cone had been significantly affected by saltwater intrusion, having been first detected in the shallow Newark Aquifer in 1920 and rendering that aquifer unsuitable for irrigation;
- that degradation in the deeper Centerville Aquifer of the Niles Cone had begun to occur by 1950, and by 1959 had grown to encompass 3,000 acres;
- that by 1959, saltwater intrusion was beginning to show up in the deep Fremont Aquifer;
- that abandoned, defective and improperly constructed wells were continuing to allow saline waters from the Newark Aquifer to penetrate the other aquifers;
- and that “a permanent solution to the saltwater intrusion problem of Southern Alameda County cannot be achieved until additional water supplies are imported to equalize groundwater replenishment and extraction.”⁴⁵

The study recommended that the District: adopt and enforce suitable standards for well construction and for sealing abandoned wells, continue to search for and seal “problem” wells, maintain surveillance of the quality of water and water levels affected or threatened with degradation, and import supplemental water to equalize groundwater supply and extractions.⁴⁶

When the saltwater intrusion study was reviewed with the Board in March 1961, draft legislation was also considered that would enable the District to impose “a pumping charge to provide an additional method of paying for imported water” that might be required for repelling saltwater intrusion. The potential for a “pump tax” to help pay for imported water had been discussed by the Board as early as the fall of 1960.

The Board now authorized District Counsel Morris Hyman to work with Assemblymember Carlos Bee and the District’s other state legislative representatives to introduce the proposed legislation.⁴⁷ Hyman told the Board members, “The revenues raised would assist in payment for water that would be imported into the District’s percolation pits to replenish the underground supplies.” He said that the legislation would enable the District to install meters on all wells pumping water within its jurisdiction, including portions of the city of Hayward within the District’s boundaries.⁴⁸

Passed in the 1961 legislative session as an uncodified section of the State Water Code, the Alameda County Replenishment Assessment Act provided the authority for the District to charge operators of water production facilities an assessment to cover the cost of replenishing the groundwater basin with imported supplies. The legislation also called for the preparation of an annual “Survey Report on Groundwater Conditions” which would determine the annual estimated overdraft for the Niles Cone Groundwater Basin, assess the extent of any salinity intrusion into the basin, and estimate the cost for recharging supplemental supplies into the groundwater basin, including the capital costs of all groundwater-related facilities such as wells, dikes, and percolation ponds, as well the cost of a future imported supply.⁴⁹

To find the needed supplemental water supplies to recharge the groundwater basin, the ACWD Board and staff began exploring the potential to meet the expanding water needs of its service area by importing water from the Central Valley. As early as 1950, representatives of the District met with T.R. Simpson, the principal hydraulic engineer for the Department of Water Resources, as well as with engineers from other state offices, to discuss this possibility. Simpson told the District’s representatives that the chronic water shortage problems facing Washington Township and the Santa Clara Valley could be solved in three to four years by importing supplies from a connection to the Delta-Mendota Canal or the Contra Costa Canal, both of which were being built as part of the federal Bureau of Reclamation’s Central Valley Project.

The Delta-Mendota Canal was to deliver irrigation water down the west side of the San Joaquin Valley, while the Contra Costa Canal was to supply Contra Costa County with municipal water supplies. According to Simpson, the water could be imported into the area at a cost of \$12 to \$15 per acre-foot. Adding that there were about 70 million acre-feet of surplus water in California, much of which flowed from the Sacramento and San Joaquin Rivers, Simpson explained that these supplies could be brought through either of the canals then under construction to Alameda Creek via a pipeline or aqueduct.⁵⁰

The plan to bring Central Valley water into the Alameda Creek watershed was developed further by the spring of 1951, when the Township Register reported that the Alameda County Flood Control and Water Conservation District was scheduled to hold a meeting on April 9, 1951, at the Alameda County courthouse in Oakland to discuss importing water from the Sacramento-San Joaquin River Delta. The newspaper stated that California State Engineer A.D. Edmonston had proposed to divert water from Italian Slough (also known as Old River) on the San Joaquin River approximately six miles north of the town of Tracy close to the Alameda-Contra Costa County line. This was near where the Bureau of Reclamation pumped

The California State Water Plan

A.D. Edmonston's proposal was part of the California State Water Plan which the California Legislature had approved in 1951, of which the Feather River Project, later to be called the State Water Project, was the initial unit. Twenty-seven counties would receive supplemental water, power, and economic benefit from the project, which included the Oroville and San Luis Dams and encompassed both eastern and southern Alameda County and Santa Clara County in the Bay Area.⁵²

The genesis of the Feather River Project dates back to 1945, when the State Legislature, in response to growing concern about groundwater, the Central Valley Project's acreage limitations, population growth, and accelerating urbanization, passed the State Water Resources Act. The Act vested authority for the coordination of water resource development in the state in a newly created state agency, the State Water Resources Board.

The newly created Water Resources Board was charged with making an inventory of all water supplies in the state and to formulate plans for solving the water problems of each portion of the state. By 1951, the State Water Resources Board reported that 40 percent of the runoff in California rivers emptied into the ocean along the northern coast, while the greater demands were in central and southern California.

By May 1951, State Engineer Edmonston had proposed a project to resolve this inequity, involving construction of the world's tallest dam near Oroville on the Feather River to control floods and collect runoff for delivery along a 750-mile route, first to the Sacramento-San Joaquin Delta and San Francisco Bay regions and then to the San Joaquin Valley through an aqueduct along the valley's west side, and finally across the Tehachapi's to the growing cities and industries of southern California. The State Legislature acted in late 1951 to authorize the project and appropriate funds for more detailed studies.⁵³

Oroville Dam on the Feather River.



its water into the Delta-Mendota Canal. From there the water would be pumped westward to an elevation of about 700 feet in the hills separating Livermore Valley from the Central Valley.

The water would then flow through an 8,000-foot tunnel to a storage site near Livermore and would be released from that reservoir into two conduits, one of which would supply the southern regions of Alameda County and the eastern side of Santa Clara County. The other conduit would carry water west to a reservoir in Crow Canyon near Castro Valley that would be capable of holding 80,000 acre-feet of water. This storage site would serve the central area of Alameda County. From the Crow Canyon Reservoir, water could also be diverted into the East Bay Municipal Utility District's Upper San Leandro and San Pablo reservoirs, as well as to areas in Contra Costa County. Finally, water from this system would be made available to the Livermore Valley, Alameda Creek, and to the Niles Cone in Washington Township.⁵¹

By February 1955, the *News Register* was reporting that the State Water Project (see sidebar) would store billions of gallons of water from the Feather River's watershed, and would benefit the Niles Cone because some of the project's water would be pumped through a long tunnel into Alameda Creek's watershed near Livermore, a plan similar to the one that had been presented to Alameda County residents by State Engineer Edmonston in 1951. Under the headline, "Monster State Feather River Water Project Could Double Vital Underground Supplies," the *News Register* reported that the water brought to Livermore would be used both to recharge the Niles Cone aquifers as well as provide municipal water to San Jose and irrigation for the farmlands in Santa Clara County.⁵⁴

The plans for importing Feather River water to southern Alameda and Santa Clara counties grew more specific six months later. Releasing details of the proposal for county officials' comments, California water officials suggested delivering Feather River water down the Sacramento River to Italian Slough, the diversion point originally proposed by the State Engineer in 1951. The water would be pumped over the foothills north of the Altamont Pass. From there, the water would flow by gravity in open canals and conduits south of Livermore through two tunnels, one east of Sunol and the other through the hills to Mission San Jose. Some of this water was to be released into Alameda Creek for Niles Cone recharge. The rest of the water would be carried along the eastern rim of Santa Clara Valley past Gilroy.

Celebrating the new connection to Warm Springs in the late 1950s were (l to r) Warm Springs Volunteer Fire Department President Henry Kato and ACWD Director John Pihl, general manager Matt Whitfield, and staff member Leonard Silva.



The plan also involved construction of three reservoirs in the canyons south of Livermore. According to the *News Register* the state engineer who developed the proposal expected southern Alameda County's population to grow to 600,000 people by the end of the century, and their goal was to provide sufficient water to meet that anticipated growth.⁵⁵

The Water District's attitude toward the proposed Feather River Project initially appears to have been a skeptical one. In September 1955, a meeting between District staff and Assistant State Engineer Harvey Banks was reported to the Board. At that time, consulting engineer Binkley stated, "The Feather River Project was going to involve political maneuvering." Attorney Morris Hyman observed that it appeared that Southern California "was very cool to the Project . . . and the legislature is not ready to make a determination as to whether they were going into the water business or not." Discussion by the Board then focused on whether or not ACWD should build its own project by taking further action on the District's application, filed in 1949, for unappropriated delta water from Italian Slough.⁵⁶

A 1955 editorial in the *Hayward Daily Review* pointed to the anticipated growth in Southern Alameda County over the next twenty years as a primary motivation in the development of the Feather River Project, stating that despite the unanimity of opinion regarding the "phenomenal growth that lies ahead," each forecast carried a premise that had not yet been established: "that ample supplies of water will be provided to make the increase possible." Pointing out that a groundwater overdraft situation already existed in the ACWD's service area, the District would have to "tremendously increase the rate of recharging [the groundwater basin] to realize its potential."

Should the underground basin be destroyed, millions of dollars would be required to duplicate similar storage capacity with surface reservoirs. The editorial concluded that the solution "lies in activation of a statewide plan for development of unappropriated water resources for the benefit of all areas." The most promising of these proposals was the development of the Feather River Project. The editorial went on to opine that:

"In no section should support for a water program be more outspoken, crisp and direct than in Alameda County [Water District]. Antipodal twins of increasing demand and diminishing water supply sit on our very doorstep."⁵⁷

Despite these promptings, District officials were also aware that one major problem facing the state that had not yet been resolved. This was whether or not a reservoir location could be found near San Jose to store the state water brought into southern Alameda and Santa Clara counties.

San Francisco had also voiced opposition to the State Water Project out of concern that the Project would compete with the city's Hetch Hetchy system.⁵⁸ As a result, the District continued to look to local sources for additional supplies, and in April 1956, it filed application number 17003 with the California State Water Rights Board to appropriate 60,000 acre-feet of water from Arroyo del Valle. The water was to be stored near Pleasanton at what was then called the Sanatorium Reservoir or in Niles Cone aquifers. The storage facility and diversion works were estimated to cost \$8.5 million. With some water to be used to irrigate about 18,100 acres within ACWD's service area between April 1 and October 1 of each year, the water would also be provided to meet municipal and domestic needs. According to the application, work was to begin on the diversion works and reservoir by July 1957, and be completed by October 1960. Water would be applied to beneficial uses from the project by July 1970.⁵⁹

The Lake Del Valle area in 1962 before construction of the reservoir.



Almost simultaneous with the filing of the District's application for water on Arroyo del Valle, the Pleasanton Township County Water District also filed an application for the same water. Both districts immediately lodged protests against one another's application. By January 1957, the *News Register* was reporting that the Boards of the two districts had negotiated a settlement, no doubt facilitated by the fact that both districts shared the same engineering consultant (T.C. Binkley) and attorney (Morris Hyman).⁶⁰

The agreement stipulated to the State Water Rights Board that neither agency wanted either district to have a priority in time over the other. The agencies also agreed that an immediate survey would be undertaken to assess each district's proportionate share for the cost of building the Sanatorium Reservoir (later renamed del Valle Reservoir), while also agreeing to work with water officials in Livermore to mitigate concerns about the effects of the proposed diversions on wells in the area.⁶¹

On May 9, 1957, an article appeared in the *News Register* under the headline "Lukewarm Stand May Peril Canal Cash." The article quoted an Assistant State Engineer, who alleged that the ACWD Board was "playing coy" and had refused to take a positive stand in favor of importing water from the Feather River Project, and that the District was looking at getting additional supplies from local streams (del Valle) instead.⁶²

This theme was taken up by the mayor of the newly incorporated City of Fremont, John Stevenson, when he publically called for a meeting with the Water District to urge more cooperation between the City and District to "insure orderly development of the community." The mayor "attacked the District for not taking positive action on South County aqueduct proposals now before the legislature," as well as criticizing the District's annexation policy for the Warm Springs area, which required a payment of \$75,000 to assist with the cost to connect the area to the District's distribution system.⁶³

The proposed City-Water District joint meeting took place on June 3, 1957. At that time, Board President John Pihl presented a lengthy, twenty-five page statement to the City Councils of Fremont and Newark and to the Union City Steering Committee. Pihl denied the allegations of "lukewarmness" regarding the South Bay Aqueduct Project, presenting a letter from Department of Water Resources Director Harvey O. Banks affirming that the District was "among the first to discuss with us the problems of your area, and their possible solutions,"⁶⁴ and affirming in a May 16, 1957, interview with the *Oakland Tribune*: "The Alameda County Water District is working with us, has been very cooperative and in no way is holding up progress on the matter."⁶⁵

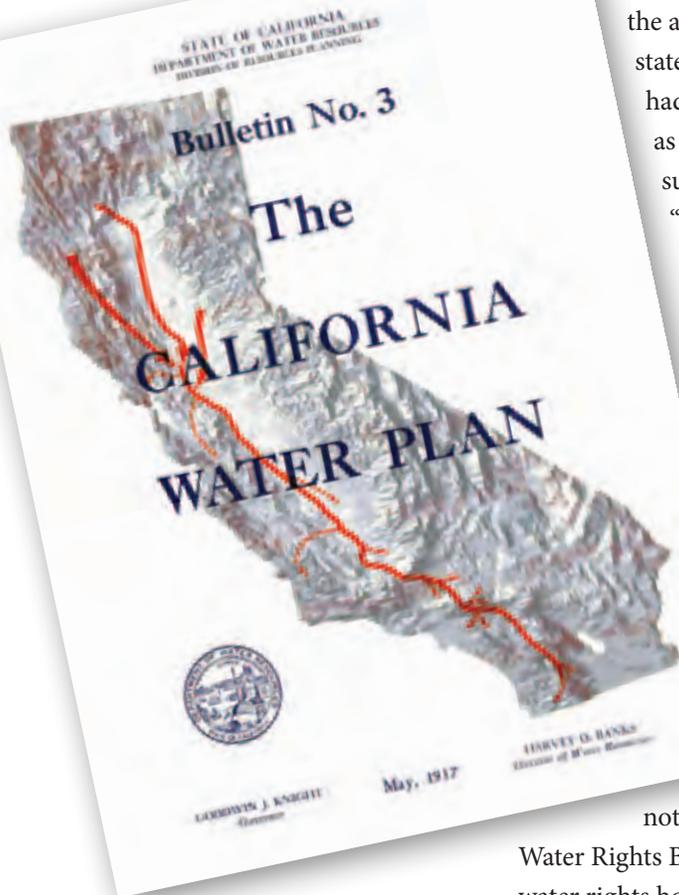
Pihl further stressed that the District would need both local supplies as well as imported supplies to meet future demands in the area, further emphasizing that any future decisions on participation in the South Bay Aqueduct project must be based on sound engineering and financial principles. Support for the speedy design of the South Bay Aqueduct was voiced by all of the attendees.⁶⁶

While the ACWD Board was reassuring its service area cities of the importance of the South Bay Aqueduct to future growth of the area, by 1957, the actual development of a comprehensive statewide plan stalled under Governor Goodwin Knight, who had succeeded Governor Earl Warren upon his appointment as Chief Justice of the U.S. Supreme Court. While ultimately supporting the creation of the Department of Water Resources “superagency” after the disastrous floods during the winter of 1955-56, Knight did little else to spur action on the Feather River Project. He insisted that a state water project would have to await a constitutional amendment that protected the interests of both northern and southern California, effectively stymieing any attempt to develop a consensus bill for a statewide water project.⁶⁷

While gridlock prevailed on a statewide plan, progress continued on developing local supplies on the Arroyo del Valle. In a January 1958 presentation to the Fremont Central Businessman’s Association, Matt Whitfield reported that ACWD and the Pleasanton Township County Water District (PTCWD) were cooperating to have a storage facility built. He

noted that during a December 1957 presentation to the State Water Rights Board, the two districts affirmed their plan to protect existing water rights holders on Arroyo del Valle by releasing sufficient water to recharge Pleasanton-area aquifers and to also supply Niles Cone and surface water rights holders. Whitfield further reported that the number of protests had been reduced from the original twenty-five down to a handful of public agencies (San Francisco, the newly formed Alameda County Flood Control District Zone 7, and the City of Pleasanton), and that an accord had been reached with these agencies as well.⁶⁸

By the end of March, 1958, L.K. Hill, the State Water Rights Board Executive Officer, advised both ACWD and PTCWD that Board Decision 894 had held that there was in fact available water in Arroyo del Valle, and that both districts would be allowed to appropriate those supplies. Two conditions were placed on this permit: the two agencies would be required to carry out studies over the next several years on the impact of appropriation



The state issued the first California Water Plan, Bulletin 3, in 1957.

on downstream areas, and the State Water Rights Board would retain jurisdiction over the Arroyo del Valle appropriations for fifteen years due to the uncertainty over how the project would emerge. With these terms in place, Water Rights Permit 11320 was issued to the District.⁶⁹

According to General Manager Matt Whitfield, previous investigations by the state Department of Water Resources were not supportive of a reservoir at the Del Valle site. “For some reason,” he said, “their geology indicated it wasn’t a suitable site for a dam and they decided not to make it part of the State plan.”⁷⁰ Because the District had already applied for unappropriated water rights on Arroyo del Valle, according to Whitfield, “we just decided to push it a little harder, and the District continued to advocate for the reservoir site with DWR Director Harvey Banks, who finally directed staff to ‘go back and take another look at it.’”

The final outcome was that, according to Whitfield, “they went back and did some more geology” and found that it was in fact a suitable site.⁷¹ Del Valle would ultimately be incorporated into the State Water Project as a terminal

Del Valle Reservoir in 1971 after the project was completed.



reservoir for ACWD and Santa Clara County for State Water Project water, as well as serving to capture local runoff from the Alameda Creek Watershed that would be shared between ACWD and the Pleasanton County Water District.

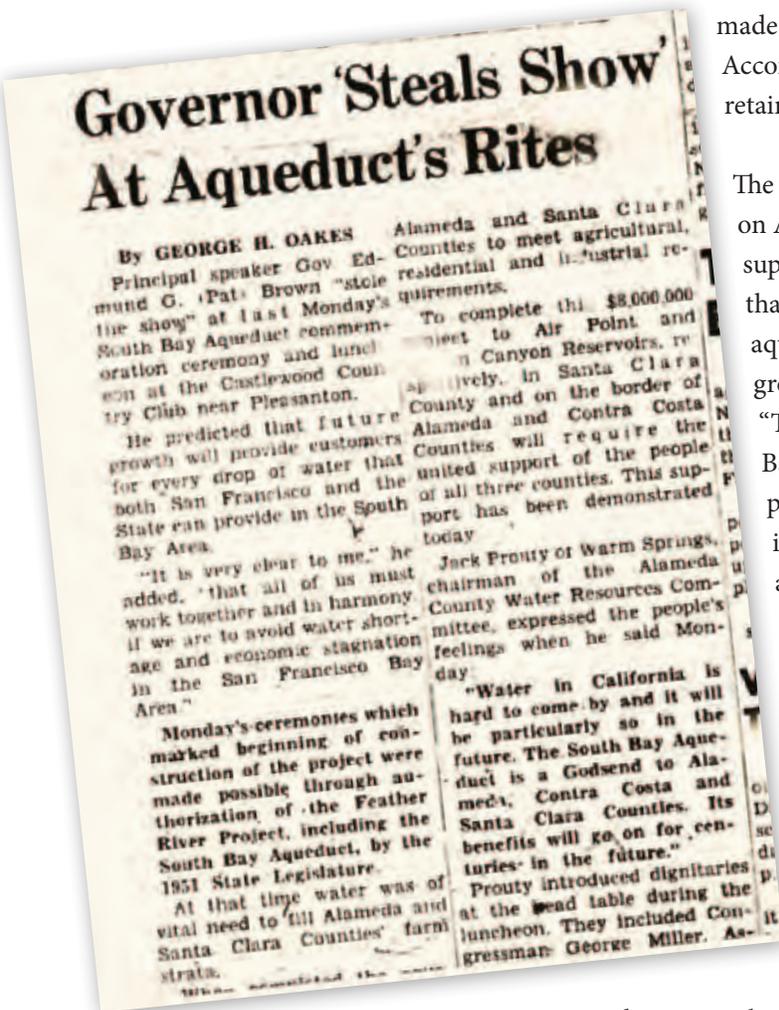
With the approval of Water Rights Permit 11320, the District had achieved a short-term solution in its search for additional water supplies, while also pressing forward in its efforts to secure water supplies from the Central Valley. In August, 1958, the Board was advised of an upcoming meeting of the Legislature's Joint Subcommittee on Economic and Financial Policies for State Water Projects (the Porter Committee). District Counsel Morris Hyman advised the Board that recommending a policy on financing to the

committee "may be one of the most important statements ever made by the District relative to the future importation of water." Accordingly, the Board directed that a financial consultant be retained to assist in preparation of a statement.⁷²

The statement ultimately made before the Porter Committee on August 28, 1958, stressed the District's need for imported supplies to reverse the groundwater overdraft conditions that had resulted in saltwater intrusion into the freshwater aquifers of the Niles Cone. Expected service area population growth would only serve to exacerbate this situation, stating, "The Alameda County Water District vitally needs the South Bay Aqueduct and vitally needs it at the earliest date it can possibly go into operation." In a detailed analysis of financing alternatives, the District supported a local agency cost allocation that would "repay their just share of the project costs," while the credit of the State of California should be used to raise capital for construction of the projects and to allow repayment to be deferred "from areas which will have relatively low demands for water during the early years of the project."⁷³

The November 1958 election of Edmund G. "Pat" Brown as Governor dramatically and decisively changed the statewide water planning landscape. Brown brought a strong, activist attitude to state government generally and to water planning particularly, concentrating most of his energies on water issues during the first years of his administration.⁷⁴

Supporting the plan for the South Bay Aqueduct, in early 1959 Brown asked the Legislature for \$7.9 million to start the project. The funds would be used to acquire rights-of-way and to finance the initial construction of the canal. Brown noted that the units proposed for immediate construction



Gov. Pat Brown championed the State Water Project and the South Bay Aqueduct. At the project's dedication ceremony, ACWD Director Jack Prouty called it a "Godsend to Alameda, Contra Costa and Santa Clara counties."

included facilities to bring Central Valley water into the Livermore Valley and to the Niles Cone, adding that once studies were completed in Santa Clara County, the South Bay Aqueduct could be extended to that area as well.⁷⁵

By June 1959, the Legislature took action to appropriate \$8.013 million for the first stage of construction of the South Bay Aqueduct.⁷⁶ In the same month, Governor Brown successfully managed the passage of a \$1.75 billion Water Resources Development Bond Act, also known as the Burns-Porter Act, through the Legislature, subject to voter approval in the November 1960 election. The \$1.75 billion bond issue was the largest ever considered by any state for any project, and this amount, plus revenue from the state's offshore oil deposits, was considered sufficient to pay for the \$2.5 billion estimated cost for the first phase of the project (including both storage facilities and the aqueduct system).⁷⁷

In November 1959, Governor Brown was the principal speaker at the ceremony marking the start of construction of the South Bay Aqueduct, accompanied by local politicians and businessmen, including former ACWD Director Jack Prouty. Although no longer a Board member as a result of a change in residence, Prouty was the chairman of the Fremont Chamber of Commerce's Water Committee, and also served as chairman of the Alameda County Water Resources Committee, whose vice-chair was Board of Supervisor member Chester Stanley. Recognizing the significance of the event in relation to the District, Prouty proclaimed:

“Water in California is hard to come by and it will be particularly so in the future. The South Bay Aqueduct is a Godsend to Alameda, Contra Costa and Santa Clara Counties. Its benefits will go on for centuries.”⁷⁸

The scope of the South Bay Aqueduct construction was enormous. This photo shows a section of the Livermore Valley Canal near Patterson Reservoir before the lining was placed.



The District remained intimately involved in the design process for the South Bay Aqueduct and was able to influence the Department of Water Resources to both expedite its construction and to save construction dollars. The initial design for the South Bay Aqueduct called for boring a tunnel through Brushy Peak, which is located in the Altamont Pass area between the cities of Livermore and Tracy. According to Matt Whitfield, the District began discussions with DWR:

. . . about some way of getting something faster than anticipated because of the lowering of the water table. We asked Harvey Banks if he would prepare a preliminary design of a pipeline coming over the hill to bring water down to the Livermore Valley and let it run down to the stream. So he said he would. Then when they got into that, . . . DWR concluded that it was more feasible, economical from the power standpoint . . . to run the [aqueduct] over the hill than to build a tunnel.⁷⁹

This suggested realignment of the aqueduct resulted in an estimated \$2 million savings in construction costs.⁸⁰

With the State Legislature's approval of SB 1106 (the Burns-Porter Act) authorizing a statewide vote on the \$1.75 billion in bonds to pay for construction of the State Water project, the District Board and staff turned to discuss ways to present the bond issue to service area voters. At a December 1959 work session on the bond issue, General Manager Matt Whitfield summarized the District's approach to "sell the bond issue to the general public." He said, "The people must be assured that this plan is the answer to the State's water supply problem and without it the State cannot grow."⁸¹ As if to emphasize the effects of growth on the District, Whitfield also reported at the next Board meeting on the number of subdivision maps received since November. In November alone, applications had come in for 1,727 homes.⁸²

Locally, support appeared to be strong from the District's three service area City Councils in favor of the water bond. A joint resolution by all three cities and the Water District had been adopted in January 1959 supporting the South Bay Aqueduct Project. To support the statewide campaign in favor of the bond issue in February 1959, the District, joined by the cities of Fremont and Newark, became members of the Feather River Project Association, contributing dues to help pay for publicity on behalf of the bond.

While willing to join a voluntary association to promote the bond, the District had earlier demonstrated an unwillingness to enter into more formal arrangements to bring imported water supplies into the service area when it declined to join the Tri-County Authority. Created by an act of the

State Legislature in the mid-1950s, the Authority’s express purpose was to promote opportunities to bring both state and/or federal water to Alameda, Santa Clara, and San Benito counties.

After lengthy public hearings and discussions with both the Alameda County District Attorney (acting as County Counsel) and Alameda County Flood Control District staff, it was finally decided that there would be “no great advantage” for the District and County to join the Authority. Most importantly, for a District that had been formed to fight for its own local supplies and water rights, the ACWD Board determined that becoming a member of the Authority would “potentially result in [ACWD] having to cede some level of local control over water supply projects.”⁸³

As debates raged on the bond issue throughout the state, Northern California critics argued that the local projects contained in the bond to win northern state voters’ support were inadequate, and many were actually unwanted. Critics further insisted that it “made more sense for people to go to the water than vice versa (that is, Southern Californians should move to the north if they wanted water.)”⁸⁴ Financial objections to the bond issue focused on exaggerated estimates of future population growth, with the *San Francisco Chronicle* warning, “If voters go ahead, they are taking a plunge into the unknown,” authorizing a “blank check to irresponsibility.”⁸⁵

The South Bay Aqueduct was to bring water from the Feather River Project (later called the State Water Project) into southern Alameda and Santa Clara counties. This section is called the Brushy Peak Pipeline.



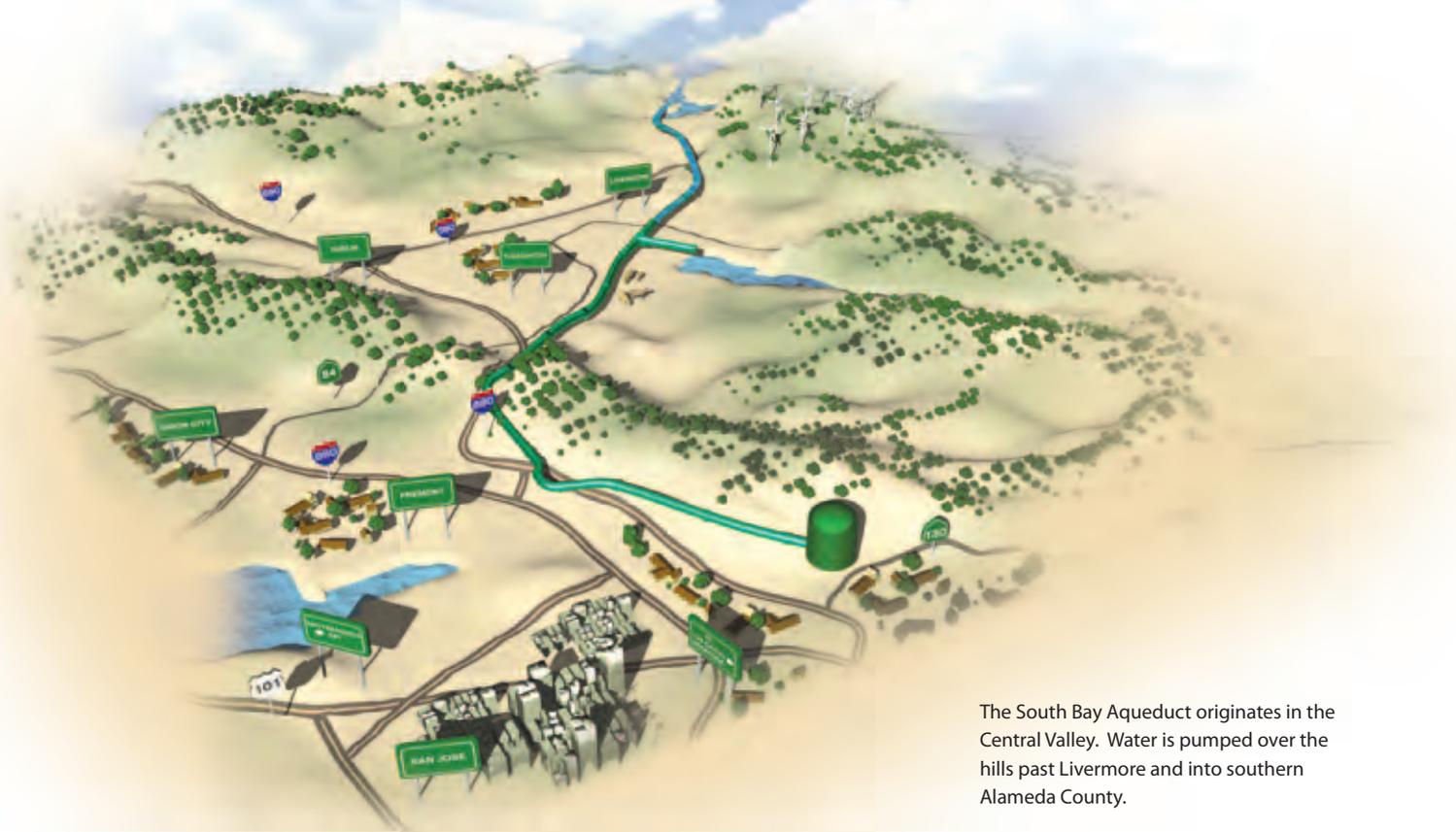
Despite the vitriolic debates and argument, on November 8, 1960, the voters did approve the bonds by a razor thin margin of only 174,000 ballots out of 5.8 million cast, or by three-tenths of one percent. With the exception of Yuba and Butte Counties, all of Northern California's counties voted overwhelmingly against the bond issue.

Alameda County voters were against the measure by almost 4 to 1, with 96,350 voting "yes" and 260,746 voting "no." This lopsided margin was only slightly better in the ACWD service area, where, despite vocal support from the Water District Board and the three City Councils, 62 percent (12,337) voted "no" versus 38 percent (7,651) voting "yes." Slim majorities in favor of the bond prevailed in only seven of 124 precincts covering ACWD's service area.⁸⁶

The swirl of criticism over regional differences and concerns was apparently effective, even for ACWD residents who stood to benefit from the much needed imported supplies that the State Water Project would bring to the area. In spite of the close statewide vote, which swung in favor of the bond issue only as a result of overwhelming support from Southern California counties, DWR Director William Warne chose to view the outcome as an affirmation of the basic principle that "California must always in the future, be willing, as no one else is willing, to . . . sustain . . . growth and development."⁸⁷

This same attitude apparently also motivated the ACWD Board to move forward to finalize a contract with the Department of Water Resources for supplemental water from the State Water Project. A hitch in these plans appeared soon after, however, in February 1961, when DWR announced its intention to only negotiate contracts with the largest agency in each county. In the case of Alameda County, this was the Alameda County Public Works Agency, which was responsible for providing county-wide flood control protection and which now proposed to operate a large regional treatment plant to distribute the State Project water on a wholesale basis to both ACWD and to the City of Hayward.⁸⁸

The ACWD Board strongly objected to the Department of Water Resources' proposal to negotiate a contract with Alameda County Public Works, believing that the District itself "should negotiate and contract for the water directly versus through Flood Control, since, in this event, ACWD would have no direct contractual rights with the State."⁸⁹ By early July 1961, a study completed by the Alameda County Public Works Agency was reviewed with the ACWD Board. Titled "Water Supply for Southern Alameda County through Proposed Zone 8," the study's financial analysis concluded that it would be potentially less costly for ACWD to furnish State



The South Bay Aqueduct originates in the Central Valley. Water is pumped over the hills past Livermore and into southern Alameda County.

Project water to its customers rather than having a wholesale agency of the type proposed by the County.

By the end of July, action had been taken by the cities of Fremont, Newark, and Union City endorsing an ACWD contract with the state. The ACWD Board also adopted a resolution setting forth the District's negotiating principles. The state finally backed away from its original position, and negotiations between ACWD and the state for South Bay Aqueduct water supplies were formally opened on August 24, 1961.⁹⁰

The struggle over which agency should manage the State Water Contract in Southern Alameda County was not the only problem facing the District's decision-makers. In May 1961, the City and County of San Francisco interjected itself into the discussions over bringing State Project water into both the ACWD service area as well as into northern Santa Clara County when the city's Public Utilities Department General Manager proposed selling water at a lower rate to these agencies to allow them to use San Francisco water to replenish their groundwater basins. The water would be diverted through a temporary pipeline from the Niles district in Fremont until a permanent pipeline could be build.

According to San Francisco General Manager Robert Kirkwood, “We believe that if you are willing to postpone the completion of the South Bay Aqueduct for 10 or even 15 or 20 years you can bring in untreated water just as cheaply. . . .”⁹¹ With the South Bay Aqueduct nearing completion to supply ACWD within the next year, and since San Francisco refused to provide a projection of future rate increases for the water they proposed to provide, the proposal soon died.

As negotiations between ACWD and the Department of Water Resources over a supply contract commenced, District staff was immediately confronted with a major stumbling block by the state’s negotiators. In May 1961, District staff had completed a report titled “Comparison of Supplemental Water Sources.” Comprehensive in scope and written by District Engineering Department staff, the report presented the results of engineering and economic studies comparing the relative merits of San Francisco’s Hetch Hetchy supply versus the State Water Project as the District’s primary future source of imported water. Beyond that, the report also estimated future water demands to 1991 and assessed whether State Project water could best be utilized by: 1) the use of wells and water softening facilities under a groundwater recharge program (importing State Project water down Alameda Creek to replenish the groundwater basin); or 2) by constructing a water treatment plant to treat State Project water (and not using this water to recharge the groundwater basin).

The study concluded that the first alternative was both the most cost-effective and, with water softening, would also provide a water quality equivalent to treated State Project water. As a result, water from San Francisco’s Hetch Hetchy system “should be limited to those specific situations under which such use would be advantageous.” Overall, to meet future demands, it was estimated that 52,000 acre-feet of State Project water would be needed by 1990, and that sufficient aqueduct capacity to the Mission San Jose area should be reserved (in the portion of the South Bay Aqueduct that would deliver water to Santa Clara County) should a future water treatment plant be required.⁹²

Even though the District’s intended use of the State Project water for groundwater recharge had long been known to the State, DWR staff now balked, advising the District that the State would not enter into a contract with the District “on a long range basis for service of water . . . for transmission through Livermore Valley down Alameda Creek to the Niles Cone for purposes of recharging the underground basin.”

This position apparently came as a complete surprise to staff, with District Counsel Morris Hyman stating that, if the Board determined that the District’s engineering plan was sound, “. . . the real question would be

whether the State could substitute its judgment for the local governing body.” The firm of Leeds, Hill and Jewett was then retained to review the District’s May 1961 report to confirm whether or not bringing State Project water down Alameda Creek was justified, or “if this is just another case of a gigantic state agency arbitrarily interfering with the internal affairs of a local area.”⁹³

By November 1961, former DWR Director Harvey O. Banks presented the results of the consultant’s review of the District’s May 1961 report, finding that the District should use the groundwater basin “to its fullest capacity and as long as possible,” but that studies should also be pursued on the possible construction of a water treatment plant at Mission San Jose.⁹⁴ Banks’ report was apparently sufficient to mollify DWR staff, and negotiations soon resumed to obtain 42,000 acre-feet of State Water Project water.

By December 1961, however, the issue of how much additional water to take at Mission San Jose, and what amount of aqueduct capacity to

California Department of Water Resources Director William Warne (center right) and general manager Matt Whitfield sign the agreement for ACWD to purchase South Bay Aqueduct Water as attorney Morris Hyman (left) and a DWR representative look on, November 29, 1961.



reserve, remained a point of contention between the parties. The basic issue revolved around the state's desire to have ACWD pay for a portion of the cost of the South Bay Aqueduct going down to Mission San Jose on its way to Santa Clara. After trading proposals on a potential increase of an additional 10,000 acre-feet (which would meet projected demands in 1991) of entitlement from the state to provide for a future water treatment plant, yet another consultant's report was authorized. Entitled an "Economic Evaluation of Delivery of South Bay Aqueduct Water to Mission San Jose," the report recommended reserving a capacity of 5,000 acre-feet to accommodate a future water treatment plant.

General Manager Matt Whitfield and Board President John Phil visit the pumping station at the Shinn pit, used for percolation into the Niles Cone.

Finally, at a meeting on December 27, 1961, attended by all three City Councils, the Board adopted a resolution formally accepting the report's recommendations and forwarding it to the State just four days before a December 31 deadline to finalize the District's contract. The requested



entitlement amount of 42,000 acre-feet was not changed and agreement was finally reached. The District's South Bay Aqueduct supply had been secured, but not without some controversy and last minute maneuvering by both parties.⁹⁵

On June 7, 1962, Matt Whitfield reported that the South Bay Aqueduct pumps had been turned on at ten o'clock the night before, and that State Project water had started to flow into Niles Canyon several hours afterward.⁹⁶ ACWD thus became the first water district in the state to receive water from the State Water Project, and none too soon, since the Niles Cone groundwater basin had reached an historic low point. With its newly acquired local water rights licenses, and with the State Water Project supply issue now settled, the District had reached a major milestone in its efforts to meet the growing demands of the three newly incorporated cities within its borders. It would also now be faced with additional challenges as its transition to an urban water agency continued through the 1960s.



Summary: Growing Pains as Washington Township Becomes the Tri-Cities – 1950-1962

By 1950, the Alameda County Water District was on the cusp of a growth trajectory that would continue well into the 1980s. The population of the District in 1950 had grown to 16,000, double what it had been at the time of the District's formation over thirty-five years before. Within ten years, by 1960, the District's population would nearly quadruple, to 60,000, as farmlands and orchards gave way to housing tracts, businesses and shopping malls.⁹⁷

By the mid-1950s, Washington Township would be no more than an historical memory on the map, as a movement toward municipal formation swept up the small hamlets and villages of the Township into newly incorporated cities, beginning with Newark and followed soon after by Fremont and Union City. With incorporation, each city would now express its own unique approach to city planning and community development; and all three wanted to grow. As a result, the approval of the District's

Rapid growth in the 1950s required the district to provide new water service to 44,000 new residents in just ten years.

Alameda Creek water rights applications did not end the District's search for additional water supplies.

Throughout the 1950s, District staff and Board of Directors would grapple with how to best address the growing water demands in the area, looking to both local and distant sources to meet anticipated future needs. The twin issues of further developing and protecting local supplies while also securing reliable imported water supplies, would continue to dominate the District's policies and planning efforts well into the 1960s and beyond.

By the middle of the twentieth century, the District's priorities would also shift increasingly away from agriculture and more toward domestic and municipal services. As a result, the staff and Board would be forced to develop a coherent philosophy for funding growth while also insuring that the infrastructure needs of existing customers were adequately addressed and funded. This would ultimately involve the development of a capital project planning and funding effort on a level of intensity and magnitude never before experienced by the District.

Chapter 4 Endnotes

¹ Minutes, ACWD Board of Directors, Volume 5, June 15, 1950, p. 208.

² Lage, Whitfield Oral History, p. 13.

³ *Ibid.*, p. 17; "District Assistant Named," *Oakland Tribune*, September 25, 1950.

⁴ Minutes, ACWD Board of Directors, Volume 6, May 21, 1952, p. 3.

⁵ "Water District Would Block Hetchy Use for Conway and Culligan Tract," *Township Register*, June 17, 1954.

⁶ "Conway and Culligan Surrender to District on Irvington Pipe Issue," *Township Register*, August 5, 1954.

⁷ Lage, Whitfield Oral History, p. 26.

⁸ Minutes, ACWD Board of Directors, Volume 6, August 27, 1953, p. 61.

⁹ *Ibid.*, July 9, 1954, p. 124.

¹⁰ Minutes, ACWD Board of Directors, Volume 6, June 1, 1955, p. 194.

¹¹ "Well Dispute Pits Farmers Vs. Water Men," *Township Register*, May 27, 1954.

¹² *Ibid.*

¹³ Minutes, ACWD Board of Directors, Volume 6, July 14, 1954, p. 122.

¹⁴ "Water Men Row on Soito Well," *Township Register*, August 5, 1954.

¹⁵ "Soito Well Pumping Legal, Quaresma Tells Water District Majority," *Township Register*, September 16, 1954.

¹⁶ Minutes, ACWD Board of Directors, Volume 6, September 22, 1954, p. 138.

¹⁷ "Soito Pumping Doesn't Lower Levels: Report," *Township Register*, November 18, 1954.

¹⁸ Minutes, ACWD Board of Directors, Volume 6, June 1, 1955, p. 194 and November 3, 1955, p. 229.

¹⁹ Minutes, ACWD Board of Directors, Volume 6, December 14, 1955, p. 242.

²⁰ Hundley, p. 276.

²¹ "Niles Engulfed by Rampaging Creek," and "15 Square Miles under Water in Alvarado Area," *Oakland Tribune*, December 25, 1955.

²² *Ibid.*; Lage, Whitfield Oral History, p. 49; ACWD Minutes, Volume VI, December 28, 1955, p. 244 and January 26, 1956, p. 273.

²³ See Chapter 3, page 37-39.

²⁴ Caswell, Patterson Oral History, Second Interview, pp. 14-16.

²⁵ "Board Ok's Shinn Pit Dike Work," *Oakland Tribune*, August 2, 1956.

²⁶ Minutes, ACWD Board of Directors, 3/14/56 to 2/20/58, April 2, 1956, p. 8.

²⁷ Minutes, ACWD Board of Directors, 3/14/56 to 2/20/58, January 18, 1957, p. 92.

²⁸ *Ibid.*, April 24, 1957, p. 129.

²⁹ Lage, Whitfield Oral History, p. 50.

³⁰ Minutes, ACWD Board of Directors, 3/14/56 to 2/20/58, July 25, 1957, p. 119.

³¹ ACWD Publication, Office Open House, August 10, 1958, p. 1.

³² Lage, Whitfield Oral History, p. 51.

³³ Footnote: Humpert 1960 campaign flyer: "51% Profit or Lower Rates?" (Fremont History Museum Archives).

³⁴ Minutes, ACWD Board of Directors, 2/28/58 to 6/29/59, October 19, 1958, p. 165.

³⁵ Minutes, ACWD Board of Directors, Volume 6, September 28, 1955, p. 217.

³⁶ *Ibid.*, October 13, 1955, p. 221.

³⁷ Minutes, ACWD Board of Directors, 3/11/56 to 2/20/58, July 11, 1956, p. 34.

³⁸ Minutes, ACWD Board of Directors, February 28, 1958 to June 29, 1959, April 23, 1959, pp. 270-271.

³⁹ *Ibid.*

⁴⁰ Minutes, ACWD Board of Directors, 9/14/60 to 12/3/61, May 24, 1961, p. 146.

⁴¹ Minutes, ACWD Board of Directors, 2/28/58 to 6/29/59, June 26, 1958 meeting, p. 17.

- ⁴² Ibid. August 14, 1958, p. 18.
- ⁴³ Minutes, ACWD Board of Directors, Volume 6, January 6 and January 12, 1955, pages 154 and 156.
- ⁴⁴ Ibid., 3/14/56 to 2/20/58, March 15, 1957, p. 113.
- ⁴⁵ Department of Water Resources Bulletin Number 81, "Intrusion of Salt Water into Groundwater Basins of Southern Alameda County," December 1960, pp. 43-44 (quote is on page 44).
- ⁴⁶ Ibid.
- ⁴⁷ Minutes, ACWD Board of Directors, 9/14/60 to 12/3/61, April 12, 1961, p. 117.
- ⁴⁸ "Well Pumping Fee Proposal to Legislature," *Oakland Tribune*, April 13, 1961.
- ⁴⁹ ACWD Replenishment Assessment Act, Chapter 1942, Statutes of 1961.
- ⁵⁰ "State May Make Surplus Water Available to This Area, Board Members Told," *Township Register*, June 16, 1950.
- ⁵¹ "Plan to Bring Valley Water Here Will Be Discussed," *Township Register*, April 6, 1950.
- ⁵² "The Feather River Project, California's Next Great State Water Development," a brochure published by the Feather River Project Association, Los Angeles, CA, 1956.
- ⁵³ Hundley, p. 275.
- ⁵⁴ "Monster State Feather River Project Could Double Vital Underground Supplies," *News Register*, February, 1955.
- ⁵⁵ "\$8,000,000 State Water Plan Would Aid Township," *News Register*, September 22, 1955.
- ⁵⁶ Minutes, ACWD Board of Directors, Volume 6, September 28, 1955, p. 217.
- ⁵⁷ "Water is Our Most Critical Problem," *Hayward Daily Review*, November 29, 1955.
- ⁵⁸ "Two-Pronged Water Policy Rules Here, Whitfield Tells Businessmen," *News Register*, May 16, 1957.
- ⁵⁹ Application to Appropriate Unappropriated Water, Application No. 17003, April 16, 1956, Water Rights Applications and Permits, ACWD Offices, Fremont, CA.
- ⁶⁰ Lage, Whitfield Oral History, p. 43.
- ⁶¹ "Joint Action for Arroyo Water by 2 Directorates," *News Register*, January 10, 1957.
- ⁶² "Lukewarm Stand May Peril Canal Cash," *News Register*, May 9, 1957.
- ⁶³ "Joint City, Water Board Meet Slated," *San Jose Mercury News*, May 11, 1957.
- ⁶⁴ Letter from Harvey Banks to Mathew Whitfield, May 14, 1957, ACWD files.
- ⁶⁵ "State Official Repudiates Criticism of Water Board," *Oakland Tribune*, May 16, 1957.
- ⁶⁶ Minutes, ACWD Board of Directors, June 3, 1957, p. 156.
- ⁶⁷ Hundley, p. 278.
- ⁶⁸ "Whitfield Reports Progress on Arroyo Plan," *News Register*, January 9, 1958.
- ⁶⁹ L.K. Hill, March 29, 1958 letter to Applicants and Protestants and Other Concerned Parties, ACWD Water Rights Permit 11230 historical files.
- ⁷⁰ Lage, Whitfield Oral History, p. 58.
- ⁷¹ Ibid., p. 59.
- ⁷² Minutes, ACWD Board of Directors, 2/28/58 to 6/29/59, August 14, 1958, pp. 104-105.
- ⁷³ "Statement of Alameda County Water District Before the Joint Subcommittee on Economic and Financial Policies for State Water Projects," given at Hayward, CA on August 28, 1958, ACWD historical files, Fremont, CA.
- ⁷⁴ Hundley, p. 278.
- ⁷⁵ "Governor Seeks to Start S. Bay Canal," *News Register*, January 29, 1959.
- ⁷⁶ ACWD 1961-62 Annual Report, p. 2, ACWD Historical Files, Fremont, CA.
- ⁷⁷ Hundley, p. 276-77.
- ⁷⁸ "Governor Steals Show at Aqueduct Rites," *News Register*, November 26, 1959.
- ⁷⁹ Lage, Whitfield Oral History, p. 61.
- ⁸⁰ Minutes, ACWD Board of Directors, 2/28/58 to 6/28/59, January 22, 1959, p. 228.
- ⁸¹ Minutes, ACWD Board of Directors, 7/9/59 to 8/24/60, December 14, 1959, p. 84.
- ⁸² Ibid., December 29, 1959, p. 87.
- ⁸³ Minutes, ACWD Board of Directors, Volume 6, February 9, 1955, p. 160 and March 2, 1955, p. 165.
- ⁸⁴ Hundley, p. 283.
- ⁸⁵ Quoted in Hundley, Ibid., p. 283.
- ⁸⁶ California Secretary of State, "Statement of Results of Canvas of All Votes Cast at the General Election, November 8, 1960," California Secretary of State Archives.
- ⁸⁷ Quoted in Hundley, p. 287.
- ⁸⁸ Minutes, ACWD Board of Directors, 9/14/60 to 12/3/61, February 23, 1961, p. 103 and April 12, 1961, pp. 114-116.
- ⁸⁹ Ibid., February 23, 1961, p. 103.
- ⁹⁰ Ibid., July 10, 1961, p. 177; July 26, 1961, p. 183; and ACWD 1961-62 Annual Report, p. 2.
- ⁹¹ "Hetch Hetchy Offers Water Price Cut in Bid to Delay Aqueduct Plan," *San Jose Mercury News*, May 18, 1961.
- ⁹² "Comparison of Supplemental of Water Supply," Alameda County Water District, Fremont, CA, May, 1961, p. 8.
- ⁹³ Minutes, ACWD Board of Directors, 9/14/60 to 12/3/61, September 27, 1961, pp. 234-235.
- ⁹⁴ Ibid., November 21, 1961, pp. 265-267.
- ⁹⁵ Minutes, ACWD Board of Directors, 12/14/61 to 8/23/62, December 20, 1961, p. 9 and December 27, 1961 p. 29.
- ⁹⁶ Ibid., June 7, 1962, p. 157.
- ⁹⁷ ACWD Staff Report, "Comparison of Supplemental Sources of Water Supply," May 1961, p. 10, ACWD historical files, Fremont, CA.

ACWD Director Harry Brumbaugh and community activist Irene Vincent celebrate ACWD's purchase of Citizens Utility Company.



Chapter 5 • 1962 to 1977: Conflict and Resolution

As the year 1962 began, the Board of Directors faced yet another transition, when Ralph Logan announced his resignation. After concluding that his replacement should also come from Logan's hometown of Union City, Frank Borghi was appointed in January 1962 to fill out the remainder of Logan's unexpired term. The sole vote against Borghi's appointment was cast by Director Amaral, who argued that the appointment should be considered after the upcoming March 27, 1962, Board election. As it turned out, Directors Bernardo and Amaral were handily reelected and Tony Alameda was elected to fill the seat vacated by George Latham, who had decided not to run for reelection. Shortly thereafter Director Humpert was elected Board President and Frank Borghi Vice-President.² Both Directors Borghi and Humpert went unchallenged in the 1964 election cycle and were automatically reappointed to their seats.

Another vacancy on the Board occurred in March 1964 upon the death of Director Louis Amaral, who had served on the Board since the 1940s. He was succeeded by Newark Mayor Clark Redeker, who had decided not to run for reelection in Newark. At the time, Board President Humpert noted that Redeker "could represent Newark's interests within the water district . . . as well as provide a voice for industry on the board," since, according to *The Argus*, "The Board has been traditionally controlled by farm interests."³

By the March 1966 election, Director Manuel J. Bernardo had decided not to run for reelection after serving over fourteen years as a Board member. Challengers Harry Brumbaugh and Carl Flegal ran for a seat on the Board, in addition to incumbents Clark Redeker and Tony Alameda. Brumbaugh was a social science teacher at Washington High School and Flegal was a Certified Public Accountant and former Fremont City Council member and Mayor.

Both of their campaigns were more vigorous than those which had often characterized recent Water District races. Brumbaugh advocated that the District purchase additional softer water supplies from San Francisco and that the harder well water from the Niles Cone be used only for emergencies and for "farms and industries that care to use it."⁴ Brumbaugh further supported the development of a water distribution system with a "water softening and treatment system" as well as forcing the creation of a better sewage treatment system in the Livermore-Amador Valley to reduce the potential for polluting Alameda Creek. Flegal similarly strongly supported improved water quality and reducing taxes and meter rates while supporting the Board's efforts to control pollution in Alameda Creek.⁵ The outcome



Frank Borghi
ACWD Director 1962 – 1992
Frank Borghi was a lifelong resident of Washington Township, and his family operated dairy farms in the area. Borghi had also served on the Union City Formation Committee, as a Trustee of the Washington High School District, and as a member of the Decoto Fire Commission.



Tony Alameda
ACWD Director 1962 – 1969
Alameda was a supervisor for L.S. Williams Growers, a farming operation second only to the Patterson Ranch in size and scope. Very active in the community, Alameda had also served on both the Washington High School and Washington Township Hospital Boards.



Clark Redeker

ACWD Director 1964 – 1995

Newark Mayor Clark Redeker decided to not run again for Mayor in 1964, and instead successfully ran for the ACWD Board of Directors. He was a Stanford-trained chemist and, at the time of his election, was chief chemist for the Food Machine Corporation (FMC) in Newark. His addition to the Board added an industry and urban point of view.



Harry Brumbaugh

ACWD Director 1966 – 1990

A social science teacher at Washington High School, Harry Brumbaugh successfully campaigned on a platform of better water quality, including water softening and higher degrees of water treatment. He strongly supported the District in its efforts to find a way to curb upstream pollution from the Livermore-Amador Valley.

of the election resulted in Brumbaugh's taking over the seat vacated by Manuel Bernardo, while Directors Redeker and Alameda were returned to office.

By the following May (1966), Board President William Humpert had decided to resign from his seat on the Board. To replace him, the Board appointed John Gomes, a lifelong Fremont resident who had served on the local school board, and who was an orchard farmer in the area. As a result of changing the Board's election cycle from even to odd years, Directors Gomes and Borghi stood for reelection in November 1967, four months prior to the expiration of their original terms in March 1968. Both Borghi and Gomes were subsequently reelected to new four-year terms.

The 1969 election promised to be hotly contested, with Directors Brumbaugh, Redeker, and Alameda standing for reelection against two challengers, including retired Marine Corps officer and water pollution specialist Carl Strandberg and phone company technician Dan Silva, termed by the press as "a local man, personally familiar with the whole history of water development in Washington Township."⁶

A major issue in the campaign was the new water softening plant at the Peralta-Tyson Wellfield, which was suffering from start-up problems and was not meeting original expectations. Silva was the more outspoken of the two challengers regarding perceived District and Board failings.

The Argus endorsements for the Board called for an "infusion of new blood and new drive in the policy-making" of the District, primarily over what it saw as errors in judgment with respect to the design and construction process for the water softening plant. The paper endorsed both challengers and Clark Redeker, who was touted as the "idea man" on the Board who would "establish continuity of understanding of programs in ACWD and assure that out of that understanding would come a steady flow of proposals, thoughtful criticism and careful assessment and reappraisals."⁷

In the end, both Redeker and Brumbaugh were returned to office, and Strandberg defeated Tony Alameda, who did not actively campaign for reelection, and who had served since 1962. After the 1969 election, the complement of Board members Gomes, Borghi, Redeker, Brumbaugh, and Strandberg would remain unchanged for the next ten years, when an open seat brought on another contested election as a result of John Gomes' retirement.

The 1960s were a critical period in the District's history. During this time, the increased demands of the District's rapidly expanding residential and industrial customer base would cause conflicts with three long-standing

economic interests in Washington Township that would not be resolved until the 1970s. The three groups included: farmers, who wished to continue to take advantage of low-cost groundwater supplies to irrigate their crops; the only remaining private water distribution company in the service area, which would ultimately prove unable to meet the service and quality expectations of its residential customers; and quarry operators, who sought to expand their gravel mining operations at the expense of groundwater basin levels.

The agricultural community's issue was whether or not a replenishment assessment should be levied on groundwater pumpers in the District. In April 1962, the Board for the first time opened deliberations on the most appropriate way to pay for the soon-arriving South Bay Aqueduct water. Community opinions included: using *ad valorem* taxes to pay the full cost, having the cost met completely from water rates, or having a combination of taxes and a replenishment assessment on groundwater pumpers, which

The fiftieth anniversary of the District was marked on May 27, 1964 by a testimonial dinner given by the Chamber of Commerce of Fremont, Newark, and Union City. (Back row, l-r) Assemblyman Carlos Bee, Senator John Holmdahl, District Directors Clark Redeker and Frank Borghi Jr. (Front row, l-r) Board President William F. Humpert, Jr. and Directors Manuel J. Bernardo and Anthony E. Alameda.





John Gomes
ACWD Director 1966 – 1979
John Gomes was appointed to fill the seat of resigning Board President William Humpert. Gomes was a lifelong Fremont resident and a local orchardist. He had served on the local school board before being appointed to the ACWD Board.

had been authorized under the District’s recently passed replenishment assessment legislation.

Residents, businesses, city representatives, and farmers weighed in on the issue at an April 1962 public hearing. Major opposition to a replenishment assessment was registered by the agricultural community, while District staff recommended an assessment of \$3 per acre-foot to raise sufficient funds to pay for the cost of State Project water. District staff estimated that at least 31,500 acre-feet of State Water Project water would be needed annually, in addition to local runoff, to replenish the groundwater basin. Even at that rate, with average year runoff, it was estimated that an additional 14,000 acre-feet of salt water would intrude into the groundwater basin.

Ultimately the Board defeated a motion to levy the proposed \$3 per acre-foot replenishment assessment by a vote of three to two, with Directors Bernardo and Borghi supporting the proposal and with Directors Alameda, Humpert, and Amaral voting against it.⁸ In an effort to balance costs with the need to pay for supplemental State Water Project supplies, the Board decided to purchase only 16,000 acre-feet of State Project water during the 1962/63 fiscal year, an amount considerably less than the 31,500 acre-feet that staff estimated would be needed to repel further saltwater intrusion into the groundwater basin.⁹

The following year, when a motion was made to adopt a resolution calling for a public hearing on a replenishment assessment, the motion died for lack of a second. No further action would be taken on considering adoption of a replenishment assessment for the remainder of the 1960s, thus avoiding the question by not calling for a public hearing on the matter after the annual Replenishment Assessment Report had been presented to the Board. As a result, costs for the groundwater replenishment and management programs would continue to be funded out of the *ad valorem* tax rate and out of excess revenues collected from distribution system customers.

By 1970, the issue of adopting a replenishment assessment could no longer be ignored. The District was in the process of considering a \$6 million bond issue to finance construction of needed capital facilities, and the surplus revenue from the distribution system that had previously subsidized the “conservation” or groundwater replenishment portion of the District’s costs would no longer be available.¹⁰ A public hearing that began on April 14, 1970, to consider a replenishment assessment was held at Washington High School to accommodate the large number of ratepayers, farmers, industry, and city representatives who turned out to speak on the proposal to levy a replenishment assessment.



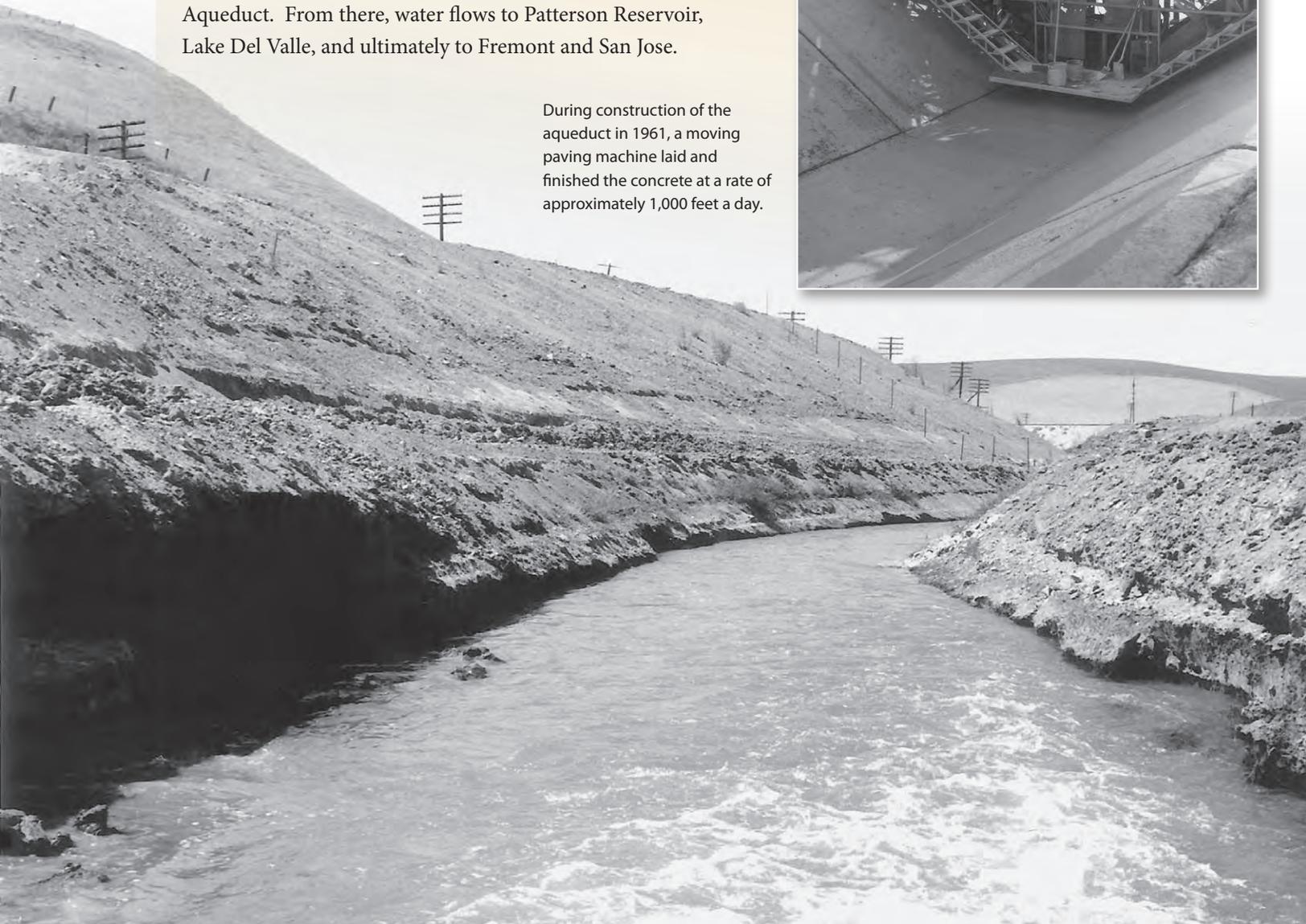
Carl Strandberg
ACWD Director 1969 – 1995
A retired Marine Corps officer, Strandberg was a water pollution specialist when he ran for the Board of Directors. He was seen as bringing a new viewpoint and new drive to the district’s policy-making.

Several community and business interests registered adamant opposition to the proposal to set a replenishment assessment of \$10 per acre-foot; the hearing was continued to May 5 and then to May 11 to accommodate the number of speakers for and against the proposal. Citing the steep increases in the *ad valorem* tax to pay for County welfare programs, an April 30, 1970, *Argus* editorial supported adoption of a replenishment assessment to place the burden for paying for the groundwater system onto the backs of those pumping from wells (including the water district). The editorial concluded that it was unfair for homeowners to “pay twice for no additional

The South Bay Aqueduct

The South Bay Aqueduct became an important component of the State Water project. The project was many years in the making, but once construction started in 1960, it took only two years before water was delivered to Alameda County. The water originates in the Feather River system north of Sacramento. It flows down the Sacramento River and through the Delta, where it is pumped into the California Aqueduct, then to the Bethany Reservoir, and then into the South Bay Aqueduct. From there, water flows to Patterson Reservoir, Lake Del Valle, and ultimately to Fremont and San Jose.

During construction of the aqueduct in 1961, a moving paving machine laid and finished the concrete at a rate of approximately 1,000 feet a day.



water – first from the same domestic water rate, or an increased one for the water they actually use from ACWD lines, plus the ACWD property tax to buy a big share of the water used for recharging the underground that big water users will continue to pump out tax free.”¹¹ The Fremont Chamber of Commerce, however, took an “oppose” stance on the proposed replenishment assessment, believing that it was “a simple fact that farmers won’t be in business much longer, and it would be a tragedy if this tax put them out of business.”¹²

At its May 11 meeting, the Board did decide to adopt a replenishment assessment for the first time since the special legislation had been passed, setting it at a rate of \$10 per acre-foot for all groundwater users, including municipalities, agriculture, and all other municipal and industrial uses. The vote on this action was also split, with Directors Borghi and Gomes voting no and Directors Brumbaugh, Redeker, and Strandberg voting yes.¹³

The fight over the adoption of a replenishment assessment did not end with the vote on May 11. By the very next week, the Board was considering an amendment to the existing replenishment assessment legislation, which had been introduced by Assemblymember Carlos Bee during the month of April, to allow differential rates to be charged for agricultural versus industrial and other uses. The proposed amendment was drafted in response to a query from Director Borghi in March 1970 as to whether or not different replenishment rates could be applied to different customers, and it was determined that this was not possible under the terms of the existing legislation.¹⁴

By May 1970, as the bill amending the replenishment legislation introduced by Assemblymember Bee moved through the legislative process, the District was surprised to find that the cities of Fremont and Newark had been lobbying to have the water pumped from wells irrigating city parks included in the lower agricultural rate.¹⁵ By the end of June, an internal District report concluded that a charge of \$8 per acre-foot for agricultural use, in combination with a higher rate for other uses and with a continuance of the \$0.17 per \$100 *ad valorem* tax, would raise sufficient funds to pay for the costs of the groundwater program without any required transfers from retail sales of distribution system water.¹⁶

At a June 29, 1970, special meeting, the Board voted to amend the replenishment assessment legislation to specifically include a flat \$8 per acre-foot charge for agricultural uses, as well as for “municipally-owned recreation” uses, in response to pressure from the three cities. The motion was originally defeated, with Directors Gomes, Redeker, and Strandberg voting against the proposal and Directors Borghi and Brumbaugh voting in favor. Director Redeker then made a motion to reconsider the previous

amendment, and it was subsequently passed unanimously.¹⁷ By the following year, the Board’s public hearing on the replenishment assessment was held without any public appearances or comment and the rate for municipal and industrial uses was increased to \$16 per acre-foot.¹⁸

Showdown Builds on Private Water Issue

While the replenishment assessment pitted farmers against the growing urban customer base in the District, another conflict arose during the mid-1960s that matched a privately owned water system against the publicly owned Alameda County Water District. By the early 1950s, ACWD had successfully absorbed all but one of the privately-owned water systems in Washington Township. The system operated by Citizens Utility Company continued to serve approximately 3,000 residents in the Niles district of Fremont and in the Decoto area of Union City. Customers of Citizens Utility Company lived in territory previously annexed to ACWD’s service area and therefore paid the *ad valorem* property taxes to the District that funded the replenishment of the Niles Cone Groundwater Basin with water from the South Bay Aqueduct. The Citizens Utility system distributed water exclusively from wells pumped from the groundwater basin.

By June 1962, a developer had begun planning work to build homes in the hill area surrounding the Masonic Home off of Mission Boulevard in Union City. The area was proposed to be served by Citizens Utility Company. However, the tract had not yet been annexed to the Water District. As a result, while the development would be served with groundwater pumped from the Niles Cone, residents could evade responsibility for paying for the South Bay Aqueduct water that was replenishing the groundwater basin. In discussions on the matter, Director Frank Borghi raised the question of whether or not the District should “consider buying out the Citizens Utility Company before it expands more.”¹⁹

A subsequent legal analysis by District Counsel Morris Hyman concluded that the company would be taking a risk if it were to supply water to customers outside of the District’s service area: the District could pursue



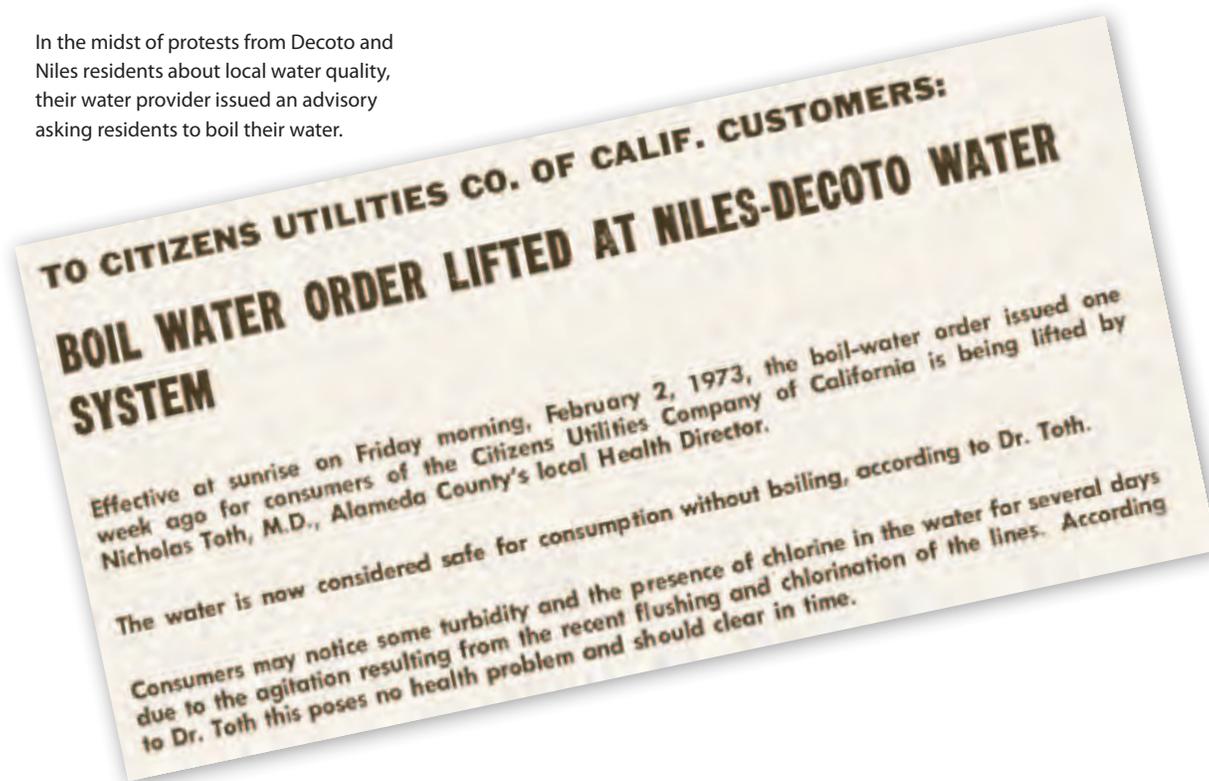
ACWD’s crews were busy throughout the 1950s-1970s putting in new water lines to bring service to new areas and upgrading old pipes. This photo shows excavation on Smith Street in Alvarado to install a 14-inch main.

litigation that could lead to pumping limitations on it, which could end in the result that “many consumers presently supplied by Citizens Utility Company could be cut off from receiving water but still be within [the] ACWD [service area].” The developer of the tract apparently balked at the prospect of annexing to the District, wanting instead a firm commitment “to ensure the future growth of all the hill area under consideration.”²⁰ Since this was tantamount to providing more favorable treatment for an unannexed area than was provided to other customers, the Board rejected the developer’s proposal and took no further action, pending a move by the developer to obtain supplies from Citizens Utility Company and/or request annexation. The area was finally annexed to the District in October 1963.

No further issues arose regarding Citizens Utility Company until January 1968, when the Board of Directors received a petition signed by over 1,500 Union City residents who were Citizens Utility customers. The petition requested that ACWD provide water service instead of Citizens Utility Company as a result of numerous complaints about its service and water quality. At that time, General Manager Matt Whitfield recommended that a feasibility study on the possible purchase of the Citizens Utility system be initiated, and that the City Councils of both Fremont and Union City be consulted regarding the study.

Both City Councils were very quick to support Whitfield’s proposal. The petitioning customers were moved to take action by a perceived lowering of the quality of the company’s service. This was primarily due to fluctuations in water pressure in many parts of its territory (due to inadequately sized

In the midst of protests from Decoto and Niles residents about local water quality, their water provider issued an advisory asking residents to boil their water.



distribution system piping as well as a lack of distribution system storage) and water quality concerns (caused by an antiquated water distribution system and poor quality water drawn from some of Citizens Utility's wells). In early 1968, the firm of Wilsey and Ham had been commissioned to prepare a feasibility report on possible acquisition of the company.

By June 1968, the Wilsey and Ham report had been completed and submitted to the ACWD Board for review. The study concluded a value of \$1.425 million to purchase the Citizens Utility system.²¹ Town meetings in both Niles and Decoto were organized and held during the summer of 1968 under the leadership of community activist and long-time company opponent Al Redd, who headed the "People for Better Water Committee." By the following September, both the Union City and Fremont City Councils had endorsed the study approach and the Fremont Chamber of Commerce voted to "express its support for the residents in the Niles-Decoto area to join the Alameda County Water District and thereby obtain the better water service it appears the District could provide."²²

In November 1968, a special ACWD Board meeting was held to further consider the consultant's feasibility study. Citizens Utility customers present at the meeting expressed a strong desire to have the Board move as rapidly as possible to acquire the Citizens Utility Company's water system. Only one resident expressed opposition to the proposal, and District Legal Counsel was directed to outline the necessary next steps to acquire the system, including holding a bond election to raise the necessary funds to purchase the system.²³

Discussions with company executives during the course of 1969 proved unproductive, with the representatives sending mixed signals by stating that it was not their policy to sell off water utilities, while at the same time objecting to the price put forward in the consultant's valuation study. A more substantive meeting between company officials and the District finally took place in January 1970. At that time, it was clear to the parties that they were almost \$2 million apart on the value of the system, and it was obvious to Board members Brumbaugh and Gomes that condemnation "would be necessary to acquire the system," and "Citizens' previous record on condemnations strongly indicates that they would resort to legal and political maneuvering which would make the proceedings very time-consuming and costly."²⁴

The consultant's report also concluded that acquisition and upgrading of Citizens Utility Company's water system would not be financially feasible without a sizeable increase in water rates for residents in the Niles-Decoto area. The main reason for this conclusion was that the prospect for a bond sale for such an effort would require a high interest rate and short maturity

period to attract investors. Based on these considerations, the Board committee recommended that the plans to acquire the Citizens Utility system be “temporarily deferred.”²⁵

By August 1970, residents in Citizens Utility’s service area had further cause for complaint when the company petitioned the State Public Utilities Commission for an 8 percent rate hike to cover the cost of ACWD’s newly adopted replenishment assessment. This followed a 67 percent increase that the Public Utilities Commission had previously approved. Al Redd, leader of the community group “in previous battles with Citizens . . . declared that another fight will be waged against the latest proposal.”²⁶

By April 1971, the Water Committees of Union City, Tamarack Knolls, and Niles appeared before the Board requesting that the District reconsider its position on delaying acquisition of the Citizens Utility Company system. The Board at that time directed that the 1968 consultant’s feasibility study be updated.²⁷ By the following June, it was reported that meetings with the company were continuing to prove unproductive, with its representatives simply reiterating its position that it was not interested in selling and even flatly refused to define its service area. As a result, the ACWD Board discussed the possibility of taking action to condemn the Citizen Utility’s water system.²⁸

“I really can’t see why they can’t close down Citizens if they revoke the permit.”

– IRENE VINCENT,
DEC. 14, 1974, THE MERCURY

Relations between ACWD and company management continued to deteriorate, with company representatives threatening legal action over service area conflicts relating to new housing developments.²⁹ By February 1973 an updated consultant’s report on the value of the Citizens Utility water distribution system had been completed. The report estimated a new minimum purchase price of \$1.56 million, based on additions and improvements to the system since the initial 1968 valuation.³⁰ On February 23, 1973, the Board initiated condemnation proceedings against Citizens Utility Company when it adopted a Resolution of Necessity that it was in the public’s interest to acquire the company’s system.³¹

By June 1973, the pressure against the company escalated when new leadership took the helm of the People for Better Water Committee. Led by Niles resident Irene Vincent, committee members appeared before the ACWD Board, presenting a container of “brown water which [Mrs. Vincent] claimed had come from a house in Union City being supplied Citizens Utility Company water,” and requested that the Board expedite its takeover of the Citizens Utility water system. At the same time, Citizens Utility Company initiated a counter-claim against ACWD, alleging that the District was intentionally causing dissatisfaction against it.³² Settlement discussions ground to a halt soon thereafter.

To finance the anticipated takeover of the Niles and Decoto distribution systems, the Board called for a November 1973 bond election among the residents of Citizens Utility Company's service area to incur \$2.85 million in indebtedness to purchase and improve the Citizens Utility water system. The public hearing on the bond issue was not without controversy, with some Citizens Utility Company-area residents stating that their water quality and service were satisfactory.³³ By the time of the election in November, the proposed bond issue passed with a lopsided majority of 83 percent voting in its favor.³⁴

With the vote in favor of the bond election serving as leverage, the Board of Directors soon directed staff to attempt to reopen settlement discussions with Citizens Utility Company executives. Simultaneous with this effort, the People for Better Water Committee continued to keep up pressure on Citizens Utility Company with repeated appearances before the California Public Utilities Commission, with media events expressing concern for the health effects from Citizens Utility Company's poor water quality, and contacting state representatives and regulators to spur action. In response, Senator Alfred Alquist introduced legislation that would have required ACWD to supply water to Citizens Utility's water distribution system from the District's own distribution system in the event the State Department of Health determined that the water pumped by Citizens Utility Company failed to meet health and safety standards "at all times and under all circumstances."

"It's like revoking a driving license. It doesn't stop the driver from driving. . . ."

- HENRY ONGERTH,
STATE HEALTH DEPARTMENT,
DEC. 14, 1974, THE MERCURY

The Water District Board opposed the bill on the grounds that supplying water it purchased from San Francisco to Citizens Utility violated Raker Act prohibitions against selling the Hetch Hetchy supplies to a private water company and because it feared that such an action would "raise [Citizen Utility Company's] asking price for eventually selling out" to ACWD.³⁵ For its part, the People for Better Water also opposed the bill, with Mrs. Vincent calling a press conference where she "poured a glass of clear water and a glass of dirty black colored water together to dramatize their opposition"

"This is Senator Alquist's solution to our problem – homogenized filth," Mrs. Vincent said.³⁶

By January 1975, the People for Better Water had succeeded in having the State Department of Health hold a hearing on the quality of Citizens Utility Company water, and the potential health concerns were sufficient to motivate the State Attorney General's office to intervene in the case. By the following June, a jury verdict on the condemnation action had been rendered. Unhappiness over the jury's award was compounded when the judge set aside the jury's verdict and substituted his own judgment of \$5

million, an amount far above both the District's latest valuation and the \$2.85 million bond issue.³⁷

Even as the Board directed its attorneys to prepare an appeal on the condemnation award, the State Public Utility Commission was holding hearings on the issue of obtaining an alternative source of supply for the Citizens Utility customers in Niles and Decoto. A report by Director Harry

Brumbaugh captures the tenor of the District's position. Director Brumbaugh wrote, "The hearing was the same as previous hearings and the District took the position it was not under the jurisdiction of the PUC and would not be intimidated or coerced into selling water to Citizens. We then left the hearing."³⁸

Events finally came to a head on March 24, 1976, when the Board of Directors convened a special meeting on the Citizens Utility Company purchase. In attendance were representatives of the State Public Utility Commission, the State Attorney General, and the State Department of Health. Public Utility Commissioner Batinovich reported to the attendees that his office had been active over the past year in attempting to reach a settlement, which had been provisionally agreed upon at a \$3.678 million price, and which would need to be accepted by all parties by March 31. On March 25, the ACWD Board finally accepted the provisional agreement, concluding that the "resulting rates would be within the ability of the people to pay and that it was the only certain method of resolving the problem."³⁹

A bond election to add an additional \$1.95 million for the cost of the system was

scheduled for June 8, 1976. The proposal to increase the bond passed easily and the transfer from Citizens Utility Company to ACWD finally occurred on October 20, 1976.⁴⁰ Work could now begin to bring the antiquated Citizens Utility system up to the District's standards and to improve water service for over 3,000 residents in the Niles and Decoto areas.



After years of effort, ACWD bought out Citizens Utility Company's water distribution system in Niles and Decoto. Celebrating were local dignitaries and Director Harry Brumbaugh (left), General Manager Matt Whitfield (center), and Union City Mayor Tom Kityama (right).

The Quarry Quarrel

Almost simultaneous with the fight to secure the Citizens Utility Company water system, the District's aggressive efforts to recharge the overdrafted groundwater basin soon brought it into conflict with another vested interest in the area – the quarry owners and operators who had long mined the gravels and sands in the areas adjoining Alameda Creek. Starting in the 1940s, the District began entering into agreements with the landowners and quarry operators extracting these sands and gravels from pits adjacent to Alameda Creek to allow the District to divert and percolate storm waters from Alameda Creek into the quarry pits. By so doing, the District would be able to replenish the overdrafted groundwater basin and maintain a positive pressure of water that was sufficient to repel further saltwater intrusion into the basin. For example, in November 1958 the Board of Directors authorized an agreement with California Nursery Company for “the use of certain pits for the immediate percolation project.”⁴¹

The District also began to actively explore the acquisition of certain quarry pits considered critical to the District's ability to restore the groundwater basin. This effort gained additional momentum after 1962, when water from the South Bay Aqueduct began arriving at the District via Alameda Creek. This supplemental imported water supply was purchased for the express purpose of replenishing the overdrafted groundwater basin.

A November 1962 report, “Need for Additional Percolation Facilities,” set forth the additional facilities believed to be required to percolate the additional South Bay Aqueduct water as well as additional winter storm flows from Alameda Creek. This included entering into negotiations to acquire three additional quarry pits.⁴² The affected landowners and quarry operators signaled an interest in eventually selling to the District, but not until additional gravels had been removed over the next several years.⁴³ A “Quarry Operators Committee” was formed to work with the Water District to facilitate the District's need for percolation facilities while quarry operations continued.

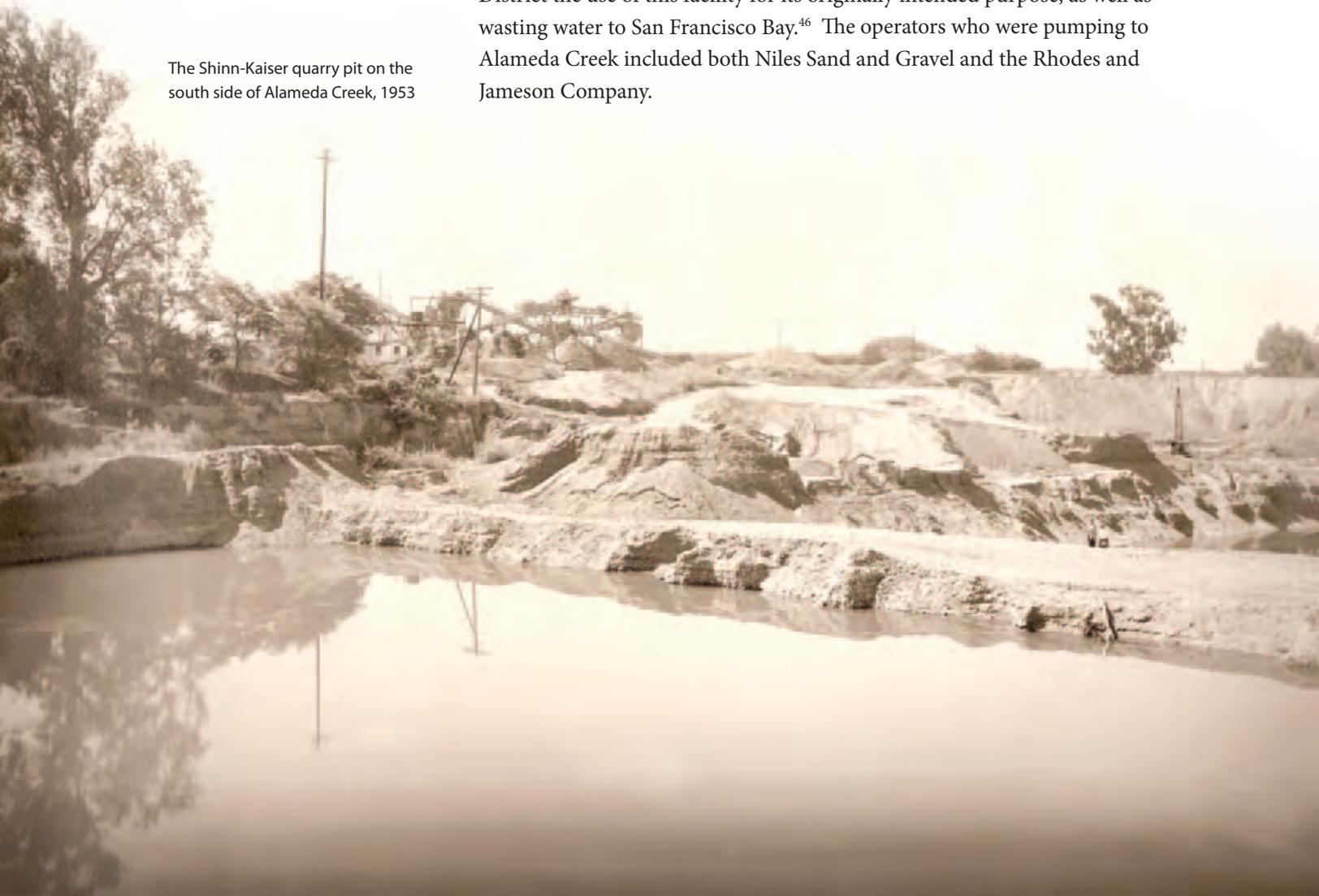
For their part, the quarry operators also lobbied the Board for “some method whereby the District would recognize their position as water users,” arguing that the water they used in processing gravels was returned to replenish the groundwater basin.⁴⁴ Conflicts over the use of the quarry pits for both gravel extraction and groundwater percolation began to arise in 1966, when one of the largest quarry operators in the area, Niles Sand and Gravel, threatened to file an injunction against the Water District. Niles Sand and Gravel alleged that the District's operations, which were causing water levels to rise in the pits, were interfering with Niles' ability to mine gravels. The dispute was settled without further court action when the

parties agreed to better coordinate seasonal groundwater percolation with gravel extraction activities.⁴⁵

The uneasy truce between gravel mining and water operations would soon unravel, primarily as a result of the District's success in raising water levels in the "forebay area" of the groundwater basin. This area represents the portion of the Niles Cone where shallow, mid-depth and deep aquifers in the basin merge together. The District had successfully raised the groundwater level in this forebay area through the use of dikes in Alameda Creek that diverted water from the creek into abandoned quarry pits. As a result, the raised groundwater level was also now flooding out the quarry operators' extraction equipment in the areas where they were still mining gravels.

To combat this situation, starting in May 1968, the sand and gravel quarry operators began pumping substantial quantities of water from their operating pits. This water that was discharged into the Alameda Creek channel was of such a high volume that only a portion could be re-percolated into the groundwater basin, and the balance flowed to waste into San Francisco Bay. The portion that was re-percolated was captured behind an earthen check dam the District had built to percolate all of its supplemental South Bay Aqueduct supplies. As a result, the quarry operators' actions denied the District the use of this facility for its originally intended purpose, as well as wasting water to San Francisco Bay.⁴⁶ The operators who were pumping to Alameda Creek included both Niles Sand and Gravel and the Rhodes and Jameson Company.

The Shinn-Kaiser quarry pit on the south side of Alameda Creek, 1953



The Water District was unsuccessful in its attempts to negotiate either a cessation or even a substantial reduction in the quarry operators' pumping activities. By late 1969, the Water District initiated an appeal to the City of Fremont to enforce a quarry use-permit provision against pumping water from the quarry pits into the Alameda Creek channel.⁴⁷ The Water District estimated that over 7 million gallons of water were "being lost each day to the Bay during the preceding nine weeks." In response, Niles Sand and Gravel filed a \$757,000 claim against the District for flood damage which it claimed was caused by the District's water storage and percolation program. For its part, the Fremont City Council declined to take immediate action on the use-permit issue until the District further documented its allegations regarding "substantial wastage" of water.⁴⁸

A December 1969 editorial in *The Argus*, "Act on the Quarry Issue!" highlighted the urgency of the need to effectively deal with this issue: "One way or another, quarry operations involving pumping at depths affecting this area's water supplies have got to stop. Facing the issue cannot any longer be delayed." Two alternatives were set out to deal with the concerns – either costly litigation or reaching some kind of cooperative agreement: "Which is best – a program to hit hard and fast every time there is a legal opportunity to shut down an operator . . . or seek the sweet reasonableness of planned phase-outs . . . with carefully supervised cooperative programs that truly are cooperative?"⁴⁹

Subsequent events would prove any effort to reach a voluntary settlement was not possible, with the quarry operators discharging nearly 18,000 acre-feet of water during the 1969 and 1970 calendar years. After unsuccessfully attempting to negotiate, the District in June 1970 filed injunctions against the quarry operators to stop pumping. The quarry operators responded by cross-complaining against the District for damages in inverse condemnation for \$6.5 million. The basis for the cross-complaints was that the groundwater elevation in the forebay had for many years been well below the operating levels in the quarry pits and that the District's groundwater replenishment program had now flooded their workings. The operators contended that their extensive pumping amounted to "self-help," which was a legal requirement that had to be met before a claim for damages could be made. The quarry operators also included their cost of pumping the water as part of their damages claim.

Following lengthy maneuverings, it was agreed that court action would take place in two phases. In the first, a trial before a judge would decide if the District was entitled to its requested injunction and whether the District (injunction or not) was liable for damages. If the first phase found the District liable for damages, then a jury trial would determine the amount of damages.⁵⁰

While the complaints and cross-complaints moved toward trial, the quarry operators opened another front in their conflict with the Water District. In May 1970, when the ACWD Board took action to finally pass a replenishment assessment charge, the District soon began charging the quarry operators for the water they used in both washing gravels and in pumping down the pits to continue their mining operations. Unwilling to pay the replenishment assessment and arguing that up to 90 percent of the water they pumped ultimately returned to the groundwater basin, the quarry operators, through state Senator Petris of Oakland, introduced an amendment to the District's Replenishment Assessment Act that would have exempted them from paying the assessment.



Conflicts between using quarry pits for gravel extraction and groundwater percolation arose in the 1960s. Quarry operators pumped water from their flooded pits into Alameda Creek, depriving the District of a high volume of water that would not be percolated into the groundwater basin.

The quarry operators found a sympathetic ear not only from Senator Petris, but also from Assemblymember Carlos Bee, who had recently introduced the District-sponsored amendment to the District's Replenishment Assessment Act that set the rate paid by agricultural pumpers and by city-owned and operated municipal recreation uses. According to Bee: "For many years they [quarry operators] allowed the Water District to use their pits to store water, and they never charged the Water District a cent . . . They say they'd have to go out of business, and they're pretty good taxpayers."⁵¹ Fortunately for the District, Petris's and Bee's efforts were unsuccessful in passing the additional last-minute changes needed to accommodate the quarry operators.

The following year the quarry operators were back, this time with an April 1971 bill sponsored by state Senators Holmdahl (Concord) and Moscone (San Francisco). Rather than specifically name the sand and gravel operators as beneficiaries, this bill simply exempted anyone returning 90 percent or more water into the underground basin from paying a replenishment assessment to the District for that portion of water pumped from and returned to the groundwater basin.⁵² The bill faced stiff opposition from not only the Water District but also from the Association of California Water Agencies and the Department of Water Resources, and was finally killed in the Senate Water Resources Committee in July 1971.⁵³

While the quarry operator-sponsored bill was being considered in Sacramento, a nine-week trial was taking place before Alameda County

Superior Court Judge Lyle Cook on the District's original complaint and the operators' cross-complaints. The District's case was largely presented through the testimony of Harvey O. Banks, former State Department of Water Resources Director and a noted authority on California groundwater supplies.

By May 1971, Judge Cook had issued the District's requested injunction against the quarry operators that stopped them from pumping any water from their quarry pits that would be discharged and wasted to San Francisco Bay. *The Argus* reported, "The order effectively halts pumping out of quarry pits into Alameda Creek from which it is transported to the Bay faster than engineers of the Water District could percolate water back into the groundwater basin for the use of industry and residents of the Tri-City area."⁵⁴

By October 1971, Judge Cook handed down his decision on the inverse condemnation and damages claims of the quarry operators. In a decisive victory for the Water District, Cook decided that the quarry operators could not recover the over \$6.5 million in damages allegedly caused by the District's "flooding" of their operating pits. Moreover, he ruled that the quarry operators were liable to the Water District for damages arising from their pumping and wastage of water to San Francisco Bay.

Most importantly for the future of the District's groundwater replenishment efforts, Judge Cook ruled that the public, through the District, had a legal right to replenish the groundwater basin and that to do so required raising the water level in the quarry pits area to an elevation of more than 20-feet above sea level. This level was the water level that was determined to have existed in a "state of nature" near the turn of the twentieth century before a serious overdraft was created by well pumpers.

Finding that the Water District's groundwater replenishment activity was for a "beneficial public purpose," Cook further determined that the quarry operators properties overlying the Niles Cone Groundwater Basin were subject to a "public servitude" for water and water conservation purposes, and that the groundwater elevation of that "public servitude" in the District's major recharge area was the 20-feet above sea level "state of nature." All of the water within the "public servitude" area was thus subject to the control of the Water District, and the property rights of any owners overlying the area were "correlative," and therefore subject to a reasonably beneficial use of the waters underlying their properties. Finally, Judge Cook determined that "the pumping and discharging of water from the gravel pits beginning in 1968 . . . constituted a non-beneficial use of said water."⁵⁵

Even though the Water District's victory could not have been more decisive, setting a statewide precedent for all water agencies involved in groundwater

replenishment programs, the quarry operators nonetheless continued to wage their battle against the Water District. They appealed Judge Cook's ruling to the State Court of Appeals, which ultimately upheld all of the trial court's findings and applications of law. Hailed by the Chief Counsel of the Department of Water Resources as "one of the most significant [decisions] in the history of California water law,"⁵⁶ the quarry operators subsequently appealed the decision to the State Supreme Court and to the U.S. Supreme Court, both of whom declined to hear the case and thus making it established precedent in the state. By early 1975, Judge Cook had found the quarry operators liable for damages. It would be another two years of appeals and cross-complaints before the District would finally receive a \$316,000 settlement from the quarry operators to bring closure to a dispute that had waged on since 1969.⁵⁷

Softening Hard Well Water

When the District published its 1965-68 Annual Report, the dominant theme was the expansion "of [the District's] distribution system to conform to the rapidly-changing character of [the] service area."⁵⁸ One of the major capital facilities discussed involved the planning and design for a large-

scale water softening program for the District's groundwater supplies. The softening of well water to reduce the hardness caused by the minerals in this source of supply had long been a goal of the District's Board. It further increased in importance as more residential customers were added to the water distribution system.



Water from District wells was "hard" and full of minerals, and customers did not like the taste, especially compared to the "soft" Hetch Hetchy water. Water softening was one approach to improving the taste of District water. In this photo, a crew sets Softener No. 3 on a pad at the Peralta-Tyson water softening plant.

By January 1964, the Board had begun discussing the potential for a second major bond issue in less than ten years to finance needed capital facilities. The last series of bonds, which had been approved by the voters in 1956, was finally issued in October 1963. It soon became apparent that water sales and property tax collections could not finance the facilities required to both improve service to existing customers as well as provide for future growth in the area. Plans were now made to issue \$5.89 million in general

obligation bonds, including \$940,000 for water softening plants and \$4.95 million for other system improvements.

The public hearing on the potential bond issuance held in February 1964 was unusually contentious, with residents opposing various aspects of the proposal, including water softening, the use of South Bay Aqueduct water to replenish the groundwater basin, and purchasing more San Francisco Water Department water as an alternative to softening, as well as a general desire to lower water rates. The final resolution approved by the Board broke the bond issuance into two separate measures. Measure A would secure debt

for general water system improvements, while Measure B would raise funds specifically for water softening plants. If Measure A failed, but Measure B passed, then B would be deemed to have failed as well. If A passed but B did not, then A would be deemed to have passed. The Board need not have worried about the outcome. Both measures passed with the required two-third's majority on March 30, 1964.⁵⁹

The hardness of the well water delivered to the District's customers had long been of concern to the Board, and had become a campaign issue in Board elections by the early 1960s. Once the \$940,000 in Measure B bonds was passed by the District's voters, work began to determine the most effective means of softening the water pumped from the District's Peralta-Tyson and Mowry Wellfields. Alternatives considered to lower water hardness included purchasing additional, softer water from San Francisco as well as the construction of water softening plants at the District's wellfields.

By 1966, a consultant's report was published recommending construction of a "continuous ion exchange" water softening process. The District named the plant after former Board member Manual Bernardo. At the time of its completion in 1969, the plant was the largest continuous countercurrent ion-exchange water softening plant in the world.⁶⁰ Built at a cost of \$1.3 million, the plant had a maximum capacity of 27.4 million gallons per day and could lower well water hardness to 10 parts per million (measured in calcium carbonate), down from more than 200 parts per million measured in the non-softened well water previously supplied to the District's customers. When combined with well water from the District's two production wellfields, the water going to customers was projected to be at 85 parts per million blended hardness.

While endeavoring to improve the quality of water delivered to the District's growing customer base, other capital projects aimed to increase the quantity and reliability of the District's local and imported water supplies. This included the completion in 1965 of the Vallecitos Channel and Turnout Project, involving the construction of a four-mile channel to deliver South Bay Aqueduct water to Alameda Creek at a point northeast of Sunol in unincorporated Alameda County instead of at the Altamont Turnout. This shortened the water supply route by nearly twenty miles, and resulted in an estimated savings of nearly 3.35 million gallons of water per day that would have otherwise been lost to evaporation and percolation into creek beds during the longer conveyance process. The channel was designed to deliver a maximum of 78.2 million gallons of water per day to the District's groundwater percolation facilities adjacent to Alameda Creek in the Niles area of Fremont.⁶¹



Installing the overflow tank at the Peralta-Tyson water softening plant, 1968

In November 1965, the District also finalized a contract with the San Francisco Water Department for increased deliveries of Hetch Hetchy Water. By the early 1960s, the San Francisco Public Utilities Commission was considering a major expansion of its water system: constructing a large reservoir in the Sierra foothills that would be jointly owned by the Modesto Irrigation District and the Turlock Irrigation District.

At about the same time, the California Department of Water Resources was planning the extension of the State Water Project into the Bay Area through the South Bay Aqueduct. To make the revenue bonds for their

new Don Pedro Dam marketable, the SFPUC had to demonstrate a firm customer base outside the city itself. It was at this point that wholesale customers of San Francisco, like ACWD, first signed long-term contracts (twenty years in most cases). By so doing, most of the twenty-seven wholesale customers chose to rely on the SFPUC rather than the State Water Project for their long-term water future. ACWD was an exception to this trend, having entered into contracts with both the state and with San Francisco.⁶²



Maintenance always has been an ongoing effort. This photo shows repair work on the Vallecitos Channel and Turnout project in 1965.

During fiscal year 1965, the District purchased 1,800 acre-feet of water from San Francisco. This amount was to be increased by 500 acre-feet per year until 1980, by which time the District would be purchasing 10,000 acre-feet per year from San Francisco.⁶³

By 1990, with the ultimate build-up of the District's State Water Project entitlement to 42,000 acre-feet

per year, this would mean that the District would be importing 52,000 acre-feet in supplies from the combined State and San Francisco sources.

It was also during early 1960s that the Bay Area Water Users Association (BAWUA) was formed as an unincorporated association, consisting of San Francisco suburban wholesale customers, including ACWD. By 1974, the association had become incorporated as a non-profit organization, representing the interests of the wholesale customers to San Francisco. At the same time, the San Francisco Board of Supervisors rejected a SFPUC proposal for a uniform 17 percent rate increase for both in-city retail and wholesale customers and ordered the SFPUC to impose a differential increase of 21 percent for wholesale customers and only a 14 percent increase for San Francisco retail customers.

BAWUA then financed a lawsuit filed by Palo Alto and other wholesale customers in federal district court challenging the legality of the rate

increase under the Raker Act. The wholesale customers won an injunction against the increase from the District Court, and San Francisco appealed. The 9th Circuit Court of Appeals affirmed the ruling, holding that the “Bay Cities” were co-grantees along with San Francisco in the rights granted under the Raker Act. This ruling would have very important and far-reaching implications, as BAWUA began negotiating a settlement to the lawsuit with San Francisco that would result in a new 25-year water contract for the suburban customers by 1984.

By the 1960s, the District had divided its activities into two broad categories:

1. Water Conservation, involved all projects and operations related to the protection and replenishment of the groundwater basin; and
2. Water Supply and Distribution, encompassed all operations and projects required to treat and distribute water to the District’s growing number of retail customers.

Revenues for each division were segregated – Water Conservation Division revenues included property taxes and, after 1970, revenues from the replenishment assessment charged for groundwater pumping. The principal source of revenue for the Distribution Division was obtained from the water commodity and service charges paid by customers.

The District’s water commodity rate and service charge had remained unchanged since 1949. In fact, the Board acted to decrease the commodity rate by 5 percent in July 1963. The only other change in commodity rates occurred in 1970 when the Board adopted a 15 percent rate increase for those few industrial customers, such as the General Motors plant in Warm Springs, which used exclusively San Francisco water. This increase represented a pass-through of a rate hike imposed by the San Francisco Public Utilities Commission on its suburban wholesale customers. Several reductions in the District’s property tax rate were also enacted during the 1960s, from a high of \$0.26 per \$100 of assessed valuation in 1962 to a low of \$0.13 by 1969. This was made possible by dramatic increases in the assessed valuation of properties in the Tri-Cities, which nearly tripled in the seven years between 1962 and 1969 to more than \$350 million.

One of the few changes the District made in commodity rates came in 1970 when the Board adopted a 15 percent rate increase for a few industrial customers, such as the General Motors plant in Warm Springs, which used exclusively San Francisco Water.



ACWD's headquarters building at Fremont Boulevard and Mattos Drive in 1970.



The District also obtained additional revenue from fees paid or assessed when new customers connected to the water system. Three kinds of charges applied to new connections:

1. The charge for the cost of installing a service line and meter;
2. A requirement that developers assume financial responsibility for all in-tract water mains except for those which qualified for a District contribution; and
3. An acreage and front-foot charge for new service connection, pursuant to Resolution 81, which had been adopted in 1958. The acreage and front-foot charges applied when a development was served from an existing main not installed by the property owner or at the owner's cost. The majority of revenues collected from the acreage and front-foot charges were then set aside to reimburse developers who had originally paid a substantial share of the cost of these water main extensions.

To pay for the cost of additional storage, water softening, pumping and treatment facilities, and other improvements, the Distribution Division historically had financed all of its operations, and a substantial amount of capital investment, from consumption, service, and connection charges. However, these charges did not allow the District to accumulate funds in the large quantities required for major facilities improvements. As a result, the District turned to the issuance of general obligation bonds to finance major construction work and to spread out the debt service sufficiently so that it could be paid out of future distribution system revenues. This included projects related to serving both existing as well as future customers as a result of growth.⁶⁴

How to Fund Continuing Growth

By 1970, the District was facing the prospect of another general obligation bond election to finance needed capital improvements to accommodate further system growth and meet increased water demands. The sale of the \$5.89 million in bonds originally approved in 1964 finally occurred in 1970 and was expected to meet the needs for funding distribution system improvements until 1972. However, this amount would not cover the construction of the District's first surface water treatment plant, which would be built in the Mission San Jose area.

This anticipated shortfall prompted a thorough reevaluation of the District's future water supply and facility funding needs in light of the continuing growth in the area, concluding: "Such modifications are indicated by growth patterns and other developments since 1964"⁶⁵ to accommodate the capital facilities planned for construction through 1975. The resulting financing study was completed in 1971. It recommended a new bond issuance of \$8 million in general obligation bonds, as well as the adoption of a new charge that would be assessed to new development in the area.

Called the Major Facilities Equalization Charge, this charge was intended to be “an admission charge to buy into a system already paid for by previous customers.”⁶⁶

Even with the proposed Major Facilities Equalization Charge, the District would still need to raise the \$8 million in bond funds to cover the cost of proposed capital improvements over the next five years. An election to approve the bonds was set for November 1971. For the first time in the District’s history, the request failed to achieve the needed two-third’s vote to pass, receiving a 55 percent majority of voters who supported the bond issue. The Board then determined to have the matter reconsidered at a June 1972 special election, warning: “Should the measure fail again, some of the alternatives would be revenue bonds at a higher interest rate, restrictions on further connections to the District’s system, or lowering of the District’s standard to permit additional connections without improvements to the system.”⁶⁷

This aerial view of the Glenmoor area in June 1960 shows Fremont in transition from an agricultural to urban region.



The outcome of the June 1972 election was no different – the voters still failed to approve the bond measure by the needed two-third’s majority. The Board immediately went into discussions on what to do next. General Manager Matt Whitfield reported that the District had received requests for water service extensions to 1,400 dwelling units, for which no formal commitments had yet been made. In July 1972 the Board took action to notify these developers to whom commitments had not been made that the matter of further approvals of new development was under study, and staff was directed to develop recommendations on other financing sources that might be available to the District.

The question of how to fund future growth and improvements to the District’s water system was hotly debated over the summer months of 1972. Legal Counsel to the District was directed to report on the status of the law pertaining to the “reasonable demands of the people to be serviced,” with the Board even suggesting that legal action against the City Councils be taken for possibly “abusing their police powers” in authorizing too many building permits. Public comments from opponents who led the campaign against the bond issue expressed their concern that the District needed to take action relative to “stopping the subsidy of growth,” and that the Board should adopt a policy of making no further commitments on extending water service to new developments in the area.⁶⁸

By August 1972, the issue of the relationship between land use and development by the three cities and the Water District’s role in growth-related development was finally addressed, with the District’s attorney concluding that the District did not have “the responsibility or the legal right to control [the regulation of land use and density] by refusal to serve water,” and that the District would have to prove that the City Councils had abused their discretion in the approval of developments.⁶⁹ A public hearing on August 15, 1972, was held to consider methods of financing the distribution system major facilities improvement program. At that time, there was considerable public comment and debate, both from customers as well as developers and their attorneys, as to which direction the District should take with respect to responding to future growth.⁷⁰

The outcome of these considerations would establish the District’s course of action for the remainder of the twentieth century and beyond: would the



ACWD dedicated the A.E. Alameda Reservoir in 1972, with the honors being done by Pauline and Tony Alameda, the former Director for whom the reservoir was named, and Director Harry Brumbaugh.

Board seek to interfere with the growth decisions of the three City Councils by limiting service connections, or would the Board find an alternative method to pay for future facilities required to both meet the needs of existing as well as future customers?

The final decision by the Board on this question came in September 1972. At that time, the Board took two actions to address the gap between revenues and expected capital project costs. First, the Board adopted a resolution setting a “Major Facilities Connection Charge (MFCC)” for various types of new development in the District. This charge would go beyond the scope of the “Major Facilities Equalization Charge” previously recommended by the District’s financing consultant and would be set at the rate required to not only help pay for the cost of capital projects already financed by the ratepayers, but would also pay for the growth-related portion of future planned capital projects. Secondly, the Board adopted the first increase in the water commodity rate since 1949, with Matt Whitfield explaining that the 3.5 percent increase was needed because the District “had been running in a deficit position in recent years and has had to use reserve funds” to finance needed improvements.⁷¹

Although the next several months would see several challenges to the MFCC by private land developers, the Board held firm to its adopted policy, and there would be no further debates regarding the District’s role vis-à-vis approval of new developments. From 1972 forward, growth would begin to “pay for itself” through a combination of fees and charges that not only financed the extension of water service to new developments, but which would also fund the share of the cost of future required capital improvements caused by growth. Existing customers would support the “non-growth” cost of needed capital facilities through more frequent water rate increases. Underlying the entire effort was the beginning of a more long-range planning approach to capital facilities that would assess the need for capital improvement projects based on already established criteria (such as water quality requirements, average daily storage needs, additional water supply needs, etc.) several years into the future. The twice-defeated bond issue served as the impetus to this approach, which would serve the District and its customers very well as capital improvement needs grew, and as the District’s planning for these needs became increasingly sophisticated.

Mission San Jose Water Treatment Plant

By 1971, the District also began planning for the design and construction of a 10 million gallon-per-day surface water treatment plant. The plant would be located in the hills above the Mission San Jose area and take State Project water from the Mission San Jose Turnout of the South Bay Aqueduct. This was the same location supported by the Department of Water Resources, which actively lobbied for treating all of the District’s State Water Project

water supply just before the contract between the State and the District for these supplies was consummated in 1961.

Although the District prevailed in the original dispute, and was ultimately allowed to use its State Water Project supplies for groundwater replenishment, it did commit to consider construction of a water treatment plant at the Alameda Bayside Turnout, and to pay for a portion of the South Bay Aqueduct capital and operating costs down to the Mission San Jose area of Fremont. As finally planned, the plant would serve housing developments at elevations over 100 feet above sea level, which would have otherwise required water to be pumped from lower elevation zones. By 1975, it was anticipated that the additional 10 million gallons per day from the plant would be needed to meet demands in the southern portion of the District's service area.

The Mission San Jose Water Treatment Plant was originally planned to be constructed by 1972 as one of the capital projects to be funded out of the ill-fated 1971 bond election. Construction of the plant was deferred until 1975-76, allowing time to collect the funds required for design and construction from both new development (with the new MFCC charge) and from existing customers (through water rates). When the plant finally came online in 1976, the District had added yet another source of supply to its distribution system mix. The plant would treat either local runoff captured in Lake Del Valle or water from the State Water Project delivered through the South Bay Aqueduct. This water would be in addition to local supplies and State Water Project water percolated and stored in the groundwater basin and pumped from the District's well-fields, as well as the Hetch Hetchy water purchased from San Francisco and provided directly to customers through several turnouts from the main San Francisco pipelines traveling through the Fremont and Newark areas. By the mid-1970s, the District had successfully put in place the three sources of supply that would serve its customers well into the twentieth century and beyond.

The widening of Alameda Creek by the Army Corps of Engineers opened up the opportunity for expanded percolation areas for District water supplies both in the creek bed and in the quarry areas along Alameda Creek's banks. As the creek widening and rechannelization project neared completion in the late 1960s, ACWD engineering staff worked with Corps



Mission San Jose Water Treatment Plant was built to treat water from the Delta which carried a mix of organic and inorganic materials – including peat and pesticides from Central Valley farms.

of Engineers designers to incorporate plans for construction of two inflatable rubber dams in the creek channel, one just above the Western Pacific Railroad track bridge over the creek in Fremont and the other further downstream, in the vicinity of Paseo Padre Parkway.⁷² When completed in 1972, “Fabridam 1” was 275 feet long and 13 feet high, and could be filled with a combination of air and water. The largest of its type in the world at the time, the dam was expected to conserve an additional 4,000 acre-feet of water per year, with the water impounded behind the dam ultimately percolating into the groundwater basin. Just as importantly, according to



To address vulnerabilities from floods – and to expand the potential for percolation of water into the Niles Cone -- the Army Corps of Engineers rechannelized Alameda Creek in the late 1960s, completing the work in 1972.

Assistant Chief Engineer Stan Saylor, since “No permanent dams may be built in the flood control channel . . . the Fabridam is an ideal solution. It automatically deflates if flood waters reach 12 inches over its crest.”⁷³

The importation of South Bay Aqueduct water also allowed for a continuous flow of water in the channel by bringing in water to percolate into the groundwater basin during the dry summer and early fall months. The net effect of these improvements on ACWD’s groundwater basin was dramatic. According to a Department of Water Resources report, “During the decade 1961-

1971, the amount of groundwater in storage has been significantly increased by over 60,000 acre-feet and water levels have recovered approximately 55 feet in the forebay adjacent to the upper portion of Alameda Creek.”⁷⁴

These major changes also opened up opportunities for increased recreational uses along Alameda Creek. As early as 1962, the District acknowledged that the water from the South Bay Aqueduct would “. . . provide increased recreational facilities in the Niles Canyon area through flowing water in the natural stream channel during the summer months.”⁷⁵ These flows would benefit the private recreational operators who leased land owned by San Francisco within the Niles Canyon corridor of Alameda Creek, including Joyland Park and other concessionaires who provided both fishing and swimming facilities to the public. In a 1962 feature article, the *Oakland Tribune* celebrated the impact of the newly received State Project water on “creek side resort owners who, for the first time in several years, are assured a continuous and uninterrupted supply of pure water running through their properties . . . [and] means outdoor recreation for hundreds of swimmers and fishermen.”⁷⁶

More importantly, the potential for joint uses of the played-out quarries (which were increasingly being offered for sale during the ’60s and ’70s) for both recreation and water supply uses was recognized. As the ACWD Board considered some of these purchases as early as 1962, their potential for recreational use was raised by Director Frank Borghi, who urged the

District to acquire the pits for both water supply and recreational uses.⁷⁷ By 1968, after the election of Harry Brumbaugh to the Board, consideration of acquiring the quarries for both recreational and water supply uses would take on added importance, with Brumbaugh stating, “The Board was interested in [both] percolation and recreation,” and a Quarry Study Committee was formed with the City of Fremont to further explore these opportunities.⁷⁸

By 1969, the District’s interest in both protecting Alameda Creek Water Quality and in the recreational activities along Alameda Creek prompted Director Brumbaugh to suggest that the District lease the lands along Alameda Creek in Niles Canyon from San Francisco, and then sublease them to the service-area cities for recreational purposes, “thus enabling the District to prevent pollution of Alameda Creek” by having approval and oversight responsibilities over leasee uses. A report had been presented to the Board that detailed the existence of unsanitary sewage facilities in some of the privately operated facilities that could put the waters of Alameda Creek in jeopardy.⁷⁹

As a result of this report, a motion was adopted on August 28, 1969, to determine the cost involved in leasing the properties owned by San Francisco in Niles Canyon, which consisted of seven parcels taking up 46 acres in the canyon area. Discussions were also initiated with San Francisco Mayor Joseph Alioto regarding the District’s desire to lease these properties.

District crews conducted an emergency repair on a dike on Alameda Creek. Instead of temporary earthen dikes, the District now uses rubber dams which can be inflated or deflated depending on water levels in Alameda Creek.



Mayor Alioto was supportive, and plans were soon underway to work out an agreement. By September 1969, these plans had advanced to the point that takeover of the leases by the Water District appeared imminent, with *The Argus* reporting that assuming control of the territory would result in “the creation of a pollution-free park” in the area, if the Water District would agree to take over responsibility for enforcing health and building codes on the properties, “particularly with reference to water pollution.”⁸⁰ By January 1970, the lease agreement was finalized when the District accepted the terms of the land use permit with San Francisco for the Niles Canyon properties “for the express purpose of protecting Alameda Creek



This aerial view shows the Alameda Creek Flood Control Channel after the creek was widened in 1972.

water from pollutants or contaminants from the premises covered by [the] permit.⁸¹

With the District now engaged in providing oversight for recreational uses within Niles Canyon, attention next turned to developing joint uses of the Alameda Creek quarry areas. In November 1971, the Board established a Conservation and Recreation Committee, with citizen appointees and with local physician and developer Dr. John Beretta as Chair. The committee’s purpose was to recommend public policies to protect the District’s water supply and to find ways and means to develop various District facilities for recreational purposes.⁸²

By 1973, the District had initiated discussions with the East Bay Regional Park District to look for ways to work cooperatively to develop joint water supply and recreational uses of District facilities. By November 1975, an agreement had been drafted providing for joint use and operation of 160 acres of Alameda Creek quarry lands by both the Water District and the East Bay Regional Park District. The following month, the Alameda Creek Quarries Joint Use Agreement had been adopted and action was taken to purchase 70 acres of abandoned quarry pit land from Lone Star Industries, with each agency paying for half of the purchase price.

In April 1976, The District entered into a 25-year joint use agreement with both the East Bay Regional Park District and the City of Fremont to jointly develop 130 acres of percolation pits and adjoining properties owned by all three agencies for recreational uses. These areas included the “Above Hayward Fault” portion of Shinn and Kaiser Pits, as well as Bunting, Ford, and Grau Ponds.⁸³ In November 1976, the Board formally adopted the East Bay Regional Park District’s Land Use Development Plan for Alameda Creek Quarries Regional Recreation Area, Phase 1, which would govern recreational development for the extensive quarry pit areas located below the Hayward Fault. It would take another twenty-five years before the vision of the Quarry Lakes Regional Recreation Area would be fully realized. The 1976 agreements began the long-term cooperative partnership between the Water District and Park District that would one day make that vision a reality.⁸⁴

Upstream Discharge – Downstream Consequences

As the District made inroads in improving its control over land use in Niles Canyon that could impact the quality of water flowing down Alameda Creek, it also turned increased attention onto the Alameda Creek Watershed above Niles Canyon, in eastern Alameda County. Population growth in the Livermore-Amador Valley had resulted in ever-increasing flows of treated wastewater discharges into creeks and streams that ultimately fed into Alameda Creek; and from there into the ACWD groundwater supplies. The District had long advocated for more stringent standards to be adopted by the San Francisco Bay Regional Water Quality Control Board regarding these discharges. By 1956, the Regional Board had adopted Resolution 226, which expressed its intention to control the mineral quality of wastewater discharges in the Alameda Creek Watershed above Niles. This action was a direct result of efforts by the Water District to protect the Niles Cone groundwater basin supply. The resolution outlined a monitoring program to provide the basis for control of future waste discharges to the watershed above Niles.⁸⁵

By the mid-1960s, pressure continued to mount, as the Cities of Pleasanton and Livermore, and the Valley Community Services District which served

the City of Dublin, sought to expand their wastewater treatment plants, as well as the amount of effluent the plants discharged into the Alameda Creek Watershed. News stories and photos of foam and suds in Niles Canyon as a result of these discharges only served to increase the pressure for further action by the Regional Board.

Throughout the mid-1960s, letters from the Water District to the Regional Board reiterated the ACWD Board's "consistent and continued position

that we are unalterably opposed to all increases in waste disposal into any channels which will eventually, if not immediately, discharge into the Niles Cone recharge area."⁸⁶ In a March 1966 letter, General Manager Matt Whitfield observed:

"The entire Creek smells like a sewer, looks like a sewer, and is presently being used as a sewer, and we, the people of the Alameda County Water District, are drinking this water in a relatively short time after it enters the underground."

Whitfield further went on to complain that the District's water supply from the State Water Project was being degraded as a result of these discharges.⁸⁷ He also expressed the District's opposition to any attempt to use the "dilution effect" of its State Water Project supplies flowing down Alameda Creek to meet any discharge standards.⁸⁸

Livermore-Amador Valley policymakers had a very different perspective. When the Regional



Upstream discharge of wastewater created foam in Alameda Creek. This photo shows the view downstream from Vallejo Mill Diversion Dam in March 1963.

Board issued a cease and desist order against the City of Livermore prohibiting further discharges from the city's wastewater treatment plant because it was below the requirements set on the city's enlarged plant that was scheduled for completion by the end 1966, Livermore city officials were "willing to let a court of law settle a dispute over alleged pollution by Livermore of Alameda Creek." According to a February 28, 1966, *Oakland Tribune* article, the city's mayor alleged that the Regional Board order "acted out of pure emotionalism with an unwillingness to face facts," and that the Regional Board members were "only interested in placating the Alameda County Water District in Fremont, a constant and severe critic of the city's sewage treatment and disposal methods."⁸⁹

As a result of these pressures, by January 1971, the Regional Board had adopted Resolution 71-3, which established a time schedule for long-term

compliance with the objectives of Resolution 226 to assure adequate protection of groundwater both in the Livermore-Amador Valley and in the Niles Cone. The resolution further prescribed that the agencies involved in discharging into the Alameda Creek Watershed must submit a schedule and description of a study that would be the basis for a comprehensive water quality management program for the Alameda Creek Watershed above Niles to achieve the Regional Board's objectives. The water quality management program would have to be implemented by January 1975.

By June 1971, the Regional Water Quality Control Board had adopted its "Interim Water Quality Control Plan for the San Francisco Bay Basin." This plan reiterated the Board's intent to enforce Resolution 226 and further declared that waste discharges "shall not degrade groundwaters." The Interim Plan also stated that discharge of sewage-bearing waste to non-tidal waters was prohibited except where the Board had approved such a discharge as part of a reclamation project, or where no alternative location was possible.⁹⁰ Alternatives to the discharges to Alameda Creek Watershed tributaries had to be found and implemented.

By 1972, the ACWD Board also considered legal action to stop any additional discharges of treated wastewater into Alameda Creek's tributaries as a result of growth in the Livermore-Amador Valley area. According to District Assistant Chief Engineer Stan Saylor, high levels of nitrates were recently found in several of the District's wells, and "imported State Water Project water was being degraded by the continual flow of sewage. Without the dilution factor contributed by the addition of the State Project water to the Alameda Creek supplies, "total dissolved solids in the basin of the Niles Cone would by now have exceeded U.S. Public Health Service standards." In a final expression of frustration over the issue, Saylor concluded: "Why should the Valley have a license to pollute? This is ridiculous."⁹¹

Now under threat of lawsuits from both the Regional Board and from ACWD, in May 1974, the Cities of Pleasanton and Livermore, and the Valley Community Services District, formed a new Joint Powers Agency called the Livermore-Amador Valley Water Management Agency (LAVWMA) to develop a regional solution to the sewage discharge problem. Studies of alternative discharge methods were soon initiated, and the best alternative selected was to construct a 15.6 million gallon-per-day pipeline that would pump the treated wastewater over the East Bay hills and ultimately into the deep water outfall in San Francisco Bay currently being constructed by another Joint Powers Agency of Bay-side wastewater agencies and cities, called the East Bay Dischargers Authority (EBDA). By 1975, the combined wastewater discharges of the three Valley agencies were amounting to 10.5 million gallons per day. The cost of the pipeline was an estimated at \$22 million in total costs. The majority of the estimated

*"Why should the Valley
have a license to pollute?
This is ridiculous."*

– STAN SAYLOR

construction costs would be covered by federal and state grants, with an \$8.3 million local cost-sharing amount to be proportionally shared by the three LAVWMA agencies.⁹²

The LAVWMA Board, consisting of two elected officials from each of the member agencies, wasted no time in proposing that a revenue bond election be held in the three agencies' jurisdictions to raise the \$8.3 million local share. Measure U was voted on at the November 2, 1976, general election, but failed passage. There were apparently multiple causes for the failed bond issue, including concerns about the impacts of the pipeline on growth. Many felt that it was sized too large and would encourage "urban sprawl," while others believed that it was a waste of the public's money to "pump water over the hills to the ocean" at a cost of \$22 million.⁹³

Upon hearing of the defeat of the bond issue, ACWD Board President Harry Brumbaugh fired off a letter to the LAVWMA President stating: "In these days of enlightened environmental concern, it is regrettable that the communities of the Livermore-Amador area have shown such a negative attitude toward a project designed to eliminate the serious water quality problems created by those same communities." Brumbaugh went on to express concern that the "continued pollution of the waters of Alameda Creek is a serious threat to the viability" of the regional recreation program along Alameda Creek being pursued in conjunction with the East Bay Regional Park District. He ended his comments with a clear threat – that unless LAVWMA took positive and conclusive steps to guarantee that the pipeline project would proceed, the ACWD Board would "do everything in its power to see that [the District] pursues all means available including direct legal action against the responsible parties to halt the systematic pollution of the water supplies of Alameda Creek by your waste discharges."⁹⁴ To reiterate their concerns, both Brumbaugh and ACWD General Manager Matt Whitfield appeared at the November 18, 1976, LAVWMA Board meeting, at which time Brumbaugh presented information on pay-as-you-go financing as an alternative to a bond issue.⁹⁵

The LAVWMA Board faced a dilemma. The pipeline project had to be built, as required by the Regional Water Quality Control Board as well as by the U.S. Environmental Protection Agency. Grants from both the state and federal governments had been secured to pay for the lion's share of the cost of the pipeline. But political divisions within the three Livermore-Amador Valley communities were delaying the project by denying the required local funding amount. Consideration was given to holding another bond election in May 1977. According to the minutes of the March 24, 1977, Board meeting, Board President Harry Brumbaugh expressed his opinion that the residents in the Livermore-Amador Valley were "not going to voluntarily take steps to eliminate Alameda Creek pollution," and that it might be necessary to file a lawsuit.

Meanwhile, the LAVWMA Board continued to look for ways to finance the local share of the project, which had been significantly reduced to \$3.3 million as a result of securing a \$16.9 million federal grant and a \$2.8 million state grant. A bond election was not held in May 1977, as the LAVWMA Board explored other options, including issuing non-voter approved Certificates of Participation to finance the project. The ACWD Board finally directed its legal counsel to prepare a lawsuit, which was filed in July 1977.

The suit alleged that the discharges of treated wastewater effluent into Alameda Creek constituted a nuisance by causing an increase in the level of total dissolved solids in the creek, resulting in increased costs to consumers of ACWD water and potential adverse health effects.⁹⁶

As a sign of the contentiousness of the pipeline in the Livermore-Amador Valley, all five Livermore City Council members faced a possible recall election for their part in LAVWMA's decision to build and finance the export pipeline without voter approval. According to a Valley Community Services District director, "the lawsuit is politically non-productive, if not frivolous We here in the valley are taking all of this flak in behalf of ACWD. This certainly doesn't help matters."⁹⁷

Political rhetoric aside, by September 1977, the LAVWMA Board finally acted to issue \$3.3 million in non-voter approved debt, and the project was now underway. Lawsuits against the lack of voter approval were finally dismissed in March 1978, as were two initiative petitions that were attempted to be filed against the project.⁹⁸ The ACWD lawsuit was also ultimately dismissed, and the sixteen-mile LAVWMA pipeline went into operation in 1979, thereby bringing an end to nearly thirty years of effort by the ACWD Board to curtail all wastewater discharges into Alameda Creek.



Chemist Dick Rynda analyzes water from the foam-filled creeks.

A Measure with Teeth in It

The increasing urbanization of the District's service area had, by the late 1960s, brought to a head the issue of whether or not to introduce fluoride into the water the District provided to its customers. Contention over whether or not to fluoridate water supplies to prevent dental cavities, especially in children, raged in many communities throughout the U.S. during the 1950s and 1960s. In the Tri-Cities area, the debate was carried on by two opposing citizen groups – the Tri-City Citizens for Dental Health, which supported fluoridation, and the Fremont Citizens for Pure Air and Water, which did not. By the summer of 1970, several community

groups, such as the Jaycees and the League of Women Voters, had been enlisted in the effort to implement fluoridation of ACWD water supplies.

In response, one local newspaper gave considerable space to opposition voices. In July 1970, the *News Register* published a series of three fairly extensive articles by a group opposed to fluoridation: “Pure Water Group Says Fluoride Especially Dangerous in Fremont,” “Is It A Tooth Decay Reducer?” and “Fluoride Enters the Body from Many Sources.” Their conclusion was that fluoridation was unnecessary, could be done on a voluntary basis through local dentists, and had unforeseen potential health effects.⁹⁹

Led by local pediatrician Dr. Stephen Miller of the Tri-City Citizens for Dental Health, on August 13, 1970, the Board was presented with a petition signed by over 7,300 service area residents requesting that the issue of fluoridation be placed on the November 1970 ballot. The signatures represented nearly twice the number required for an initiative petition, and the Board determined that it was evidence of “sufficient citizen interest in fluoridating the water to justify the Board’s own action in placing the issue on the November ballot.”¹⁰⁰

Once the Board had acted to place the question of fluoridation before the voters, both sides of the campaign initiated a fierce public information campaign on “Proposition J,” which asked voters to decide whether or not “Fluoride compounds shall be added to the public water supply of the Alameda County Water District, state of California, in such a manner and to such an extent as may be approved by the State Department of Public Health . . .?”¹⁰¹ The Fremont Citizens for Pure Air and Water sent mailings calling for citizens to “preserve freedom of choice” and not allow “forced medication” of a substance that would be costly to implement and of questionable health value.¹⁰² The Tri-City Citizens for Dental Health Committee countered with a mailing of its own that cited authorities supporting the safety of fluoridation at regulated levels in drinking water, as well as the savings to consumers in avoided dental costs.¹⁰³

The Water District Board remained neutral on the issue, waiting for the voters to decide, but also affirming that any introduction of fluoride into the water supply would be in strict compliance with state and federal regulations. As early as 1951, the Board had called for an investigation into the possibility of fluoridating local water supplies in response to the promptings of local dentist E.M. Grimmer, Jr., whose father served on the ACWD Board until 1956.¹⁰⁴ By 1954, General Manager Matt Whitfield was suggesting that “if a majority of the residents of the district indicate a desire for fluoridation, some kind of vote would probably be initiated” on the issue, but that the ACWD Board “has no stand on the feasibility or relative benefits. . . .”¹⁰⁵

Almost simultaneous with the Tri-City Citizens for Dental Health Committee petition effort, the opposition began to circulate a petition that would take the issue off the November 1970 ballot, but their efforts were unsuccessful.¹⁰⁶

By the time voters went to the polls on November 2, 1970, they had been bombarded with information from both sides of the fluoridation issue. The final outcome was to approve Proposition J by a vote of 22,404 “yes” votes versus 13,890 “no” votes. Within days of the passage of Proposition J, the opposing forces cried foul, stating that they had been outspent by the Tri-City Citizens for Dental Health Committee, that the Committee resorted to distortions and inaccuracies to present their case to the public, and that no ballot arguments either for or against the measure had been allowed.¹⁰⁷

Debates between the two sides of the fluoride issue raged over the next several months, with the Fremont Area Association for Clean Environment in July 1971 finally presenting a petition to the ACWD Board signed by nearly 5,200 registered voters to place the question of fluoridation back on the ballot in the November 1971 election, at the same time as a Water District Board election and the \$8 million bond election were to take place. Once the signatures had been validated, the Board did adopt a resolution to place the matter before the voters on November 2, 1971, asking the same question, but this time designated as Measure A. The 1971 election generated less than half of the turnout of the November 1970 general election. Measure A passed once again, this time by a much smaller margin, with 8,335 votes in favor and 8,128 against the measure.¹⁰⁸ With the issue finally decided for a second time, and after considerable public review and debate, the District implemented fluoridation of its water supplies by the end of 1972.

The mid-1970s also saw the development of three programs designed to curtail and reverse the effects of saltwater intrusion into the Niles Cone Groundwater Basin. These included: (1) the adoption of well drilling and destruction ordinances by the three service area cities; (2) the implementation of an Aquifer Reclamation Program to reclaim areas in the groundwater basin with previous saltwater intrusion from San Francisco Bay; and (3) the conceptual development of a Salinity Barrier Project that would allow the District to pump down the groundwater basin to a depth that was below sea level during drought periods without causing greater saltwater contamination and movement into fresh water areas of the basin.

A Pathway for Contamination: Unsealed Wells

The District Board and staff had a long-standing interest in the problems created by abandoned agricultural wells. A 1915 map of wells in the service area compiled by Cyril Williams located over 1,600 wells that had been used primarily by farmers to irrigate crops.¹⁰⁹ As early as 1955, when Washington

Township began its evolution from an agricultural to a suburban area, the Board had begun discussing “the problem of abandoned wells and their contribution to underground pollution as well as the District’s powers to regulate them.”¹¹⁰ The 1960 study of the Niles Cone Basin by the Department of Water Resources further confirmed the damaging effects of these abandoned and improperly constructed wells. These wells had been drilled through the shallow Newark Aquifer where there was significant saltwater intrusion, creating a pathway for the saltwater to invade deeper basin aquifers.¹¹¹

The problem facing the District was that there was no over-arching state law dealing with well abandonment and sealing, and the County Water District Act, under which the District was formed, did not enumerate this power

By the 1960s, well drilling and sealing had changed significantly from when early wells were drilled and abandoned. In this photo, crews set a submersible pump and column pipe in the 1960s at Peralta-Tyson Well No. 2.



as one that a county water district could perform. According to an opinion by District Counsel Morris Hyman, if the District wished to regulate the sealing of wells, it would have to rely on the police powers of the three service area cities to adopt and enforce these requirements.¹¹² Without this power, the District did work informally throughout the 1950s and 1960s with the three service area cities to require that developers of land identify and seal abandoned wells on former agricultural properties that were being transformed into residential tracts and commercial sites.¹¹³ However, there was no authority to compel recalcitrant developers or property owners to seal wells on their properties, nor was there the ability to require abatement of wells that might pose an immediate threat to the groundwater basin.

The Board turned to the three service area cities to address the need to give the District the ability to oversee the drilling and sealing of wells. The Board proposed that each city use its police powers to adopt ordinances regulating well construction and destruction and to authorize abatement of nuisance wells. In turn, District staff would administer the three city ordinances, set standards, inspect the drilling and destruction activity, and conduct hearings on appeals. Although draft ordinances were presented to the cities of Fremont, Newark, and Union City in early 1964, it would be nearly ten years before the ordinances were finally adopted, with the Board taking action to adopt a resolution establishing procedures to implement the ordinances and to set fees and charges to recover the District's inspection costs. Since many landowners could not afford to locate and seal abandoned wells until a property was sold, the District and the cities agreed on a process that required District sign-off to confirm that any abandoned wells had been identified and properly sealed and inspected at the time a property was sold, unless a well posed an immediate threat to the groundwater basin.

Addressing the Intrusion of Salt Water into Groundwater

Besides protecting the groundwater basin from further contamination from improperly abandoned and unsealed wells, another program implemented in the 1970s took aim at reclaiming those portions of the groundwater basin that had already been contaminated by saltwater intrusion. As pumping of the Niles Cone Groundwater Basin increased during the 1950s, and before South Bay Aqueduct water was available to replenish the basin, degradation of aquifers in the basin with saline water had steadily spread from the shallow Newark Aquifer to the deeper Centerville and Fremont Aquifers. The area affected by this inland and downward movement of salt water had grown from 100 acres in 1950 to encompass over 3,000 acres by 1959.¹¹⁴

The Aquifer Reclamation Program (ARP) was designed to both reclaim the areas intruded by salt water and to keep the plume of degraded water well away from the District's "Below Hayward Fault" production wells, which

were susceptible to the inland movement of the salt water. By sinking wells in the saline-intruded portion of the Centerville, Fremont, and Deep Aquifers in proximity to flood control channels, the District could pump out the saline waters to San Francisco Bay and then replace the pumped saline water with State Water Project supplemental supplies. These supplies would be over and above the amount of South Bay Aqueduct water needed annually to balance supply and demand.¹¹⁵ By November 1975, ACWD staff was reporting that 95 percent of the ARP pumping equipment had been installed, and by May 1976 the initial review of ARP pumping results had already shown significant improvements in the Centerville and Fremont Aquifers.¹¹⁶

A Department of Water Resources 1973 study on the Niles Cone Groundwater Basin was summarized in Bulletin 118-1, which also recommended that the District begin work on the design of a “sea water barrier” that would create a “trough of depression” through the simultaneous pumping of wells on the Bay-ward side of the groundwater basin. Theoretically, this barrier would impede the inland movement of salt water into the basin when drought or other demand conditions required that the District pump its production wells below the Hayward Fault while sufficient water to replenish the basin was unavailable. Based on the Department of Water Resources’ recommendations, the District began to plan for the design of a group of “salinity barrier” wells that could be constructed and operated to allow for greater utilization of basin storage without causing further saltwater intrusion. Fourteen wells were proposed to be drilled into the shallow Newark aquifer on the western periphery of the Niles Cone Groundwater Basin, in the vicinity of Coyote Hills.¹¹⁷

1976-77 Drought Sets New Records

The District’s efforts to replenish the groundwater basin and to diversify its water sources to ensure that its customers would have sufficient supplies even in dry years would be put to the test during the 1976-77 drought. This drought would also bring the District into conflict with state water authorities over the District’s long-standing tradition of asserting local control over its water resource decisions.

The years 1976-77 presented a unique challenge to water managers statewide. In 1976, precipitation in the state was 65 percent of average. By 1977, precipitation had fallen off to 45 percent of average. The two successive years of limited rain and snow had reduced statewide water runoff to 47 percent and 22 percent of average in 1976 and 1977, respectively. By 1977, the sixteen major rivers in the state had set new record lows for runoff, and 1977 turned out to be the driest year in California since records were started over 100 years before. The year 1976 ranked as the fourth driest year

of record. These two years of low precipitation and runoff left California with record low storage in its reservoirs and with dangerously overdrawn groundwater basins.¹¹⁸

By February 1977, ACWD staff and Board members were urging customers to make voluntary reductions in their water usage, stating that: “Although District water supplies are in better shape than in other Bay Area communities – it has three sources of supply – and although the agency is said to be able to withstand a second drought year without mandatory measures, the voluntary cutbacks are being recommended as a matter of ‘prudence.’”¹¹⁹

As it turned out, the District would ultimately experience a 10 percent deficiency in its State Water Project supply, as did other municipal users of the State Water Project system, while agricultural contractors, such as the Kern County Water Agency, took a 60 percent cutback in contractual entitlement. This disproportionate reduction between municipal and agricultural users

The 1976-77 drought set new records, leaving California with dangerously overdrawn groundwater basins and record low storage in its reservoirs. In the Central Valley, water levels in Folsom Reservoir (shown below) were so low that islands appeared as water receded.



was built into the State Water Project contracts, under the assumption that agricultural users could rely on groundwater pumping or simply not plant crops during the dry conditions.

Fortuitously, the largest State Water Project municipal contractor, the Metropolitan Water District of Southern California (Metropolitan), decided to forego its entire 400,000 acre-feet in reduced entitlement in 1977. This was made possible by the fact that Metropolitan's Colorado River supplies were unaffected by the California drought. As a result, this additional water was to be made available for purchase by other contracting agencies.¹²⁰

Metropolitan Water District decided to forego its entire 400,000 acre-feet entitlement.

At its meeting of February 17, 1977, the ACWD Board was considering a staff recommendation to adopt a plan for voluntarily reducing water use by 25 percent, in response to a potential 10 to 15 percent reduction in the District's San Francisco supply, in addition to the 10 percent reduction in State Water Project entitlement. At the same Board meeting, the directors were informed that a "mailgram" had been received from Governor Jerry Brown's Office, requesting responses to four questions regarding local conservation efforts. At the time, the Board's consensus was to "advise the Governor that the Board feels the entire state should share in shortage, not just Northern California, and that districts shouldn't have to suffer because of unprepared areas."¹²¹

Within a week, another telegram had been sent from the Director of the Department of Water Resources advising state contractors of the availability of supplemental water from the Metropolitan supply. Staff was directed to pursue the purchase of up to 5,000 acre-feet of water to help replenish the local groundwater basin, which was needed to replace local supplies lost as a result of low rainfall and runoff in Alameda Creek. However, the state also required agencies purchasing these supplemental supplies to implement a mandatory water rationing program with a 25 percent reduction goal below the prior year's usage. Staff was also directed to present a list of proposed regulations restricting water use at a special meeting scheduled for early March.¹²²

By the time of the March 3, 1977, special meeting, General Manager Matt Whitfield advised the Board of a proposed 25 percent reduction in its San Francisco supply, and that the District would receive an additional 3,000 acre-feet in emergency State Water Project supplies, subject to agreeing to impose a 25 percent mandatory rationing plan on its customers by June. After numerous public meetings and hearings, the Board finally adopted Ordinance 25 on May 23, 1977, declaring a water shortage emergency and implementing a plan to achieve a 25 percent reduction in water use below 1976 levels. The adopted plan set daily allotments, based on household size, seasonally adjusted to account for higher spring/summer irrigation use, for

single-family households. Multi-family and commercial/industrial users' allocations were set at 25 percent below 1976 usage.

To encourage conservation, excess use charges were imposed for consumption over the daily allocations, going up to twice the base water commodity charge. To further encourage conservation, the District also participated in a program in cooperation with the Tri-City Ecology Center to distribute water conservation kits, consisting of bottles to displace toilet tank water amounts and showerhead flow restrictors, to service area customers.¹²³

By June 23, 1977, staff was reporting that water use overall had fallen by 45 percent since the first of the month, and that a 25 percent rate hike would be necessary effective July 1, in large measure due to the effects of the drought on reduced water use. As a result of the precipitous decline in water use, and out of concerns over reduced revenues, the Board adopted a motion at the June 23 meeting to suspend enforcement of Ordinance 25's provisions, effective immediately, putting an end to the mandatory rationing program after less than three weeks.¹²⁴

The Board's decision to end mandatory rationing elicited an immediate reaction from Department of Water Resources Director Ron Robie, who stated to the press that he would "take immediate steps to revoke the additional water [received by ACWD] because ACWD had dropped its mandatory rationing program." On the other hand, ACWD Board members countered that "they aren't about to let the Department of Water Resources take back an allocation of 3,000 acre-feet which was arranged three months ago to fight the drought."¹²⁵

The spotlight of national attention was briefly focused on the District when the Associated Press and other national media picked up the story of the District's putting an end to rationing in the midst of the drought, while other agencies in the Bay Area, most notably East Bay Municipal Utility District and Marin Municipal Water District, continued to labor under significant supply shortages. The Governor's Office continued to express its displeasure over the District's action.

"Surrounded by a swirl of controversy and biting criticism that reaches virtually from the Governor's inner office . . . officers of the Alameda County Water District were working to convince customers that an end to mandatory rationing did not mean an end to conservation. . . ."¹²⁶

By the time a hearing by the State Water Resources Control Board was convened in Oakland in early July 1977 to review the status of conservation in the Bay Area, ACWD "continued to be lectured in its water use policies." Characterized as the "only agency in the Bay Area to testify that it has asked



Many local creeks and arroyos ran dry during the 1976-77 drought.

its customers to conserve less and use more,” the District continued to draw fire from state water officials. A news article on the hearing described the State Board’s characterization of the District’s policy as “provincial, unpolitical and uncaring for the water needs of others in the region.”

In the District’s defense, Matt Whitfield pointed out that because of conservation by ACWD customers, water consumption was running 34 percent below the previous year even with the suspension of mandatory rationing, and that the District’s primary concerns were for its own customers and for the preservation of the District’s groundwater supplies. According to Department of Water Resources Director Ron Robie, however, water agencies “must take a wider perspective in event of any loss of supply.”¹²⁷

The conflict over “voluntary” and “mandatory” conservation between ACWD and state water managers highlighted a basic tension between local control of water resources and state dictates regarding urban conservation during the 1976-77 drought. The nature of the response to the drought varied between regions of the state, with some Bay Area agencies (EBMUD



Matt Whitfield speaks at the dedication of the Whitfield Reservoir.

General Manager Matt Whitfield Retires

Not long after the July 1977 State Water Resources Control Board’s discussion on ACWD’s response to the drought, General Manager Matt Whitfield announced that he would be retiring at the end of the year.¹²⁹ Whitfield had served the District since 1950, first as Assistant to the General Manager and after 1953 as General Manager/Chief Engineer.

Whitfield’s legacy to the District included the development of the General Manager’s role as chief executive officer of the agency, responsible for both recommending and implementing Board policy and for managing the day-to-day affairs of the District.

He also expanded the expertise and size of the District’s workforce to include both in-house engineering and financial professionals and support staff who could provide a full range of services to the District’s customers. In addition, he shepherded the District through a period of explosive growth and secured sufficient imported supplies to both meet growing demands and to replenish and restore the over-drafted local groundwater supply.

By the end of his tenure, ACWD’s role as a regional water agency serving a thriving urban customer base was firmly established, and the District was well poised to meet the water supply and financial challenges facing it as it entered a new phase in its history.

and MMWD) and coastal areas (Santa Barbara) experiencing much greater supply deficiencies than others. For instance, a 10 percent voluntary conservation effort was instituted among customers in Southern California, while Marin district implemented a draconian 35 percent mandatory rationing plan.

For ACWD, the 25 percent state-mandated program was out of proportion to the actual supply reduction it experienced in 1977, with a 25 percent cutback in its San Francisco supply (which made up about 30 percent of the District's total water supplies at the time), and less than a 10 percent reduction in its State Water Project supply. This allowed the District to ensure that its groundwater supplies remained in relatively good condition, with no need to overdraft the basin to meet normal demands.

As it turned out, ACWD customers ended up using 34 percent less water in 1977 than in 1976, well in excess of the state's requirements, and making the argument between "mandatory" versus "voluntary" conservation efforts more a matter of semantics than substance.¹²⁸ With adequate precipitation during the winter of 1977-78, water supplies returned to normal conditions and the drought was declared over.

The memory of the drought would linger, however, and the local/state relationship problems highlighted by the 1977 drought response would soon be addressed with the adoption of the Urban Water Management Planning Act in 1982. With the passage of this law, local control over water management activities would be retained, subject to meeting specific statewide conditions and requirements, and conservation of water resources would become an integral part of water agency resource management efforts.

Summary: New Water Sources, Better Water Quality and Reliability: 1962 – 1977

By 1965, the District had secured its State Water Project and San Francisco water wholesale system sources of supply and had embarked upon an aggressive capital improvement program to keep pace with continued growth, to maximize the use of its local groundwater resources and to improve the quality of the water supplied to its customers. During the next fifteen years, the composition of the ACWD Board would evolve to reflect the emerging population of the area, as agricultural interests gave way to a more diverse urban environment. This would lead to decisions that would finally implement a groundwater replenishment assessment and to a Board which would champion compatible, joint development of both recreational and water-related uses of District facilities, in Alameda Creek and in the adjoining groundwater percolation pits. The defeat of a bond issue in the early 1970s would cause the District to fully implement a "pay-as-you-go" financing program to cover the cost of growth-related capital projects.

The District would also continue its long-standing policy of maintaining local control over the area's water resources in its efforts to acquire the last remaining private water company in the area, in its fight against quarry operators to stop the waste of imported water supplies, in its successful effort to end the discharge of treated wastewater into tributaries of Alameda Creek, and in its controversial response to the 1976-77 drought. By 1977, the District had weathered one of the worst droughts in California history and would see the retirement of the Matt Whitfield, who had guided the District through some of its most tumultuous years.

Chapter 5 Endnotes

¹ Lage, Whitfield Oral History, P.73

² Minutes, ACWD Board of Directors, 12/14/61 to 8/23/62, April 12, 1962, p. 105.

³ "Ex-Newark Mayor in Water Post," *Fremont Argus*, March 13, 1964.

⁴ "Changes in Water System Demanded," *San Jose Mercury News*, February 26, 1966.

⁵ "Election for ACWD Tuesday," *News Register*, March 18, 1966.

⁶ "Vote for Three," *Fremont Argus*, October 31, 1969.

⁷ Ibid.

⁸ Minutes, ACWD Board of Directors, 12/14/61 to 8/23/62, May 7, 1962, p. 132.

⁹ Minutes, ACWD Board of Directors, April 10, 1962, p. 123 and May 7, 1962, p. 131.

¹⁰ "Replenishment Assessment Public Hearing," ACWD press release, April 1970.

¹¹ "Our Growing Home Taxes," *Fremont Argus*, April 30, 1970.

¹² "Fremont Chamber Directors Vote to Oppose Pump Tax," *Fremont Argus*, April 25, 1970.

¹³ Minutes, ACWD Board of Directors, 12/10/69 to 11/30/70, May 11, 1970, p. 153.

¹⁴ Minutes, ACWD Board of Directors, 12/10/69 to 11/30/70, March 12, 1970, p. 92 and April 14, 1970, p. 146.

¹⁵ Minutes, ACWD Board of Directors, 12/10/69 to 11/30/70, May 28, 1970, p. 178.

¹⁶ Memo from M.P. Whitfield, "Differential Replenishment Assessment Rates," June 29, 1970.

¹⁷ Minutes, ACWD Board of Directors, 12/10/69 to 11/30/70, June 29, 1970, pp. 211-212.

¹⁸ Minutes, ACWD Board of Directors, 12/10/70 to 6/22/72 April 15, 1971, p. 107.

¹⁹ Minutes, ACWD Board of Directors, 12/14/61 to 8/23/62, July 26, 1962, p. 205.

²⁰ Minutes, ACWD Board of Directors, 8/27/62 to 7/25/63, September 13, 1962, p. 4.

²¹ Wilsey and Ham, "Acquisition Feasibility Report on Niles Water District Citizens Utilities Company of California," May 25, 1968 (Foster City, CA).

²² "Chamber Backs Proposed CUC Water Takeover," *News Register*, 9/28/68.

²³ Minutes, ACWD Board of Directors, 7/11/68 to 11/2/69, November 25, 1968, p. 66.

²⁴ Memo from Directors Brumbaugh and Gomes, "Report on Negotiations meeting of January 14, 1970 with Citizens Utilities Company," January 22, 1970.

²⁵ Ibid.

²⁶ "Water Rate Hike Asked to Offset Pumping Expenses," *Fremont Argus*, August 7, 1970.

²⁷ Minutes, ACWD Board of Directors, 12/10/70 to 6/22/72, April 15, 1971, p. 107.

²⁸ Minutes, ACWD Board of Directors, 12/10/70 to 6/22/72, June 10, 1971, p. 138.

²⁹ Minutes, ACWD Board of Directors, 7/6/72 to 7/11/74, August 28, 1972, p. 29.

³⁰ Minutes, ACWD Board of Directors, 7/6/72 to 7/11/74, February 23, 1973, p. 91; Wilsey and Ham, "Preliminary Report on the Estimated Selling Price of the Niles Water System, January 1973, p. 28.

³¹ Minutes, ACWD Board of Directors, 7/6/72 to 7/11/74, February 23, 1973, p. 93.

³² Minutes, ACWD Board of Directors, 7/6/72 to 7/11/74, June 28, 1973, p. 159.

³³ Minutes, ACWD Board of Directors, 7/6/72 to 7/11/74, September 6, 1973, p. 185.

³⁴ Minutes, ACWD Board of Directors, 7/6/72 to 7/11/74, November 8, 1973, p. 214.

³⁵ "Water Bill Proposed for Decoto," *San Jose Mercury News*, December 10, 1974.

³⁶ "Does Dirty Water Pose Health Threat?" *San Jose Mercury News*, December 14, 1974.

³⁷ Minutes, ACWD Board of Directors, 7/11/74 to 6/27/76, June 25, 1974, p. 141 and Sept. 11, 1975, p. 179.

³⁸ Minutes, ACWD Board of Directors, 7/11/74 to 6/27/76, November 13, 1975, p. 204.

³⁹ Minutes, ACWD Board of Directors, 7/11/74 to 6/27/76, March 24, 1976, p. 213; 3/25/76, p. 221.

⁴⁰ Minutes, ACWD Board of Directors, 7/15/76 to 12/29/77, October 15, 1977, p. 71.

⁴¹ Minutes, ACWD Board of Directors, 2/28/58 to 6/29/59, November 13, 1958, p. 180.

⁴² Minutes, ACWD Board of Directors, 9/13/62 to 7/25/63, November 15, 1962, p. 58.

⁴³ Minutes, ACWD Board of Directors, 9/13/62 to 7/25/63, February 14, 1963, pp. 115-116.

⁴⁴ Minutes, ACWD Board of Directors, 5/12/64 to 7/22/65, March 3, 1965, p. 219; April 5, 1965, pp. 236-238.

⁴⁵ Minutes, ACWD Board of Directors, 9/13/65 to 12/15/66, June 20, 1966, p. 167; 7/14/66, p. 207; 7/13/66, p. 213.

⁴⁶ Statement of Mathew Whitfield, "Review of Quarry Water Wastage Litigation, Niles Cone Groundwater Basin," Dated April 13, 1971, ACWD historical records.

⁴⁷ "Niles Firm Sues Water District," *Fremont Argus*, November 8, 1969.

⁴⁸ Ibid.

⁴⁹ "Act on the Quarry Issue!" *Fremont Argus*, December 2, 1969.

⁵⁰ Whitfield Statement on quarry water wastage.

⁵¹ "Quarry Firms Pressuring Lawmakers," *Fremont Argus*, August 8, 1970.

⁵² SB 1486, Introduced by Senators Holmdahl and Moscone, April 19, 1971.

⁵³ Memo from M.P. Whitfield to Board of Directors, July 7, 1971.

⁵⁴ "Injunction Halts Water Pumping," *Fremont Argus*, May 19, 1971.

⁵⁵ Quoted in State Court of Appeals Decision, *Niles Sand and Gravel vs. Alameda County Water District*, 37 Cal. App. 3d 924, March 14, 1974.

⁵⁶ Letter from DWR chief Counsel P.A. Towner to Special Counsel John Rogers, April 17, 1973, ACWD files, Niles Sand and Gravel litigation.

- ⁵⁷ Minutes, ACWD Board of Directors, 7/15/76 to 12/29/77, June 23, 1977, p. 227.
- ⁵⁸ ACWD Annual Progress Report, 1965-68.
- ⁵⁹ Minutes, ACWD Board of Directors, 8/22/63 to 5/7/64, April 12, 1964, p. 223; January 6, 1964, p. 115; and February 13, 1964, p. 45.
- ⁶⁰ ACWD 1965-68 Annual Report, p. 3.
- ⁶¹ "ACWD Newsletter," March 1966, p. 1.
- ⁶² Bay Area Water Supply and Water Conservation Agency web site, www.bawwsa.org, "History and Milestones."
- ⁶³ Ibid.
- ⁶⁴ Bartle Wells Associates, Financing Plan for Alameda County Water District (San Francisco, CA, June, 1971), pp. 23-24.
- ⁶⁵ Bartle Wells Financing Study, p. 15; ACWD Engineering Report, "Distribution System Improvements Proposed Improvement District No. 4," January 1971, p. 1.
- ⁶⁶ Bartle Wells Financing Study, p. 41.
- ⁶⁷ Minutes, ACWD Board of Directors, 12/10/70 to 6/22/72, November 11, 1971, p. 213.
- ⁶⁸ Minutes, ACWD Board of Directors, 7/6/72 to 6/13/74, July 27, 1972, p. 22.
- ⁶⁹ Ibid.
- ⁷⁰ Minutes, ACWD Board of Directors, 7/6/72 to 6/13/74, August 15, 1972, p. 25.
- ⁷¹ Minutes, ACWD Board of Directors, 7/6/72 to 6/13/74, September 14, 1972, pp. 35-36.
- ⁷² Minutes, ACWD Board of Directors, 1/27/67 to 6/27/68, April 24, 1967, p. 55; June 1, 1967, p. 96; 12/10/71 to 6/22/72, April 15, 1971, p. 112; 7/6/72 to 7/13/74, April 30, 1973, p. 129.
- ⁷³ ACWD "Watergram" publication, Volume 1, Number 2, May-June, 1972.
- ⁷⁴ Department of Water Resources Bulletin 118-1, "Evaluation of Ground Water Resources: South San Francisco Bay, Volume 2: Additional Fremont Area Study," August 1973, p. 12.
- ⁷⁵ ACWD, 1961-62 Progress Report, "Expanding with California's Fastest Growing Community," p. 1.
- ⁷⁶ "Water Fills Creek, Delights Residents," *Oakland Tribune*, undated article, estimated to be June, 1962, Gladys Williamson Collection, Local History Library, Fremont, CA.
- ⁷⁷ Minutes, ACWD Board of Directors, 9/13/62 to 7/25/63, November 15, 1962, p. 58.
- ⁷⁸ Minutes, ACWD Board of Directors, 7/11/68 to 11/25/69, July 25, 1968, p. 10.
- ⁷⁹ Minutes, ACWD Board of Directors, 7/11/68 to 11/25/69, August 28, 1969, p. 225.
- ⁸⁰ "Niles Creek Plan Clears a Hurdle," *Fremont Argus*, September 25, 1969.
- ⁸¹ Minutes, ACWD Board of Directors, 12/10/69 to 11/30/70, January 22, 1970, p. 31.
- ⁸² Minutes, ACWD Board of Directors, 12/10/70 to 6/22/72, December 9, 1971, p. 223.
- ⁸³ Minutes, ACWD Board of Directors, 7/11/74 to 6/8/76, April 22, 1976, p. 286.
- ⁸⁴ Minutes, ACWD Board of Directors, 7/6/72 to 10/23/73, February 8, 1973, p. 90; 7/11/74 to 6/8/76, November 24, 1975, p. 208 and December 11, 1975, p. 214; 7/15/76 to 12/29/77, October 23, 1976, p. 77.
- ⁸⁵ Brown and Caldwell Engineers, "Water Quality Management Plan for the Alameda Creek Watershed above Niles," July 1972.
- ⁸⁶ Letter from Mathew Whitfield to John Harrison, Executive Secretary, San Francisco Bay Regional Water Quality Control Board, "Tentative Resolution Prescribing Requirements as to the nature of waste discharge by VCSD, PTCWD or any other public agency which is empowered to dispose of public waste in the area into Alameda Creek near Sunol, Alameda County," dated March 10, 1966.
- ⁸⁷ Letter from M.P. Whitfield to John Harrison, Executive Secretary, San Francisco Bay Regional Water Quality Control Board, "Amendment to Resolution 683 and Motion of January 20, 1966," dated February 17, 1966.
- ⁸⁸ Minutes, ACWD Board of Directors, 7/22/65 to 12/15/66, January 12, 1966, p. 49.
- ⁸⁹ "Livermore Squabble May End Up in Court," *Oakland Tribune*, February 23, 1966.
- ⁹⁰ Brown and Caldwell, "Water Quality Management Plan..."
- ⁹¹ "ACWD up in arms over sewage plan," *Fremont Argus*, April 15, 1972.
- ⁹² Minutes, LAWMA Board of Directors Meeting, September 14, 1976, Resolution 76-9.
- ⁹³ Letters to the Editor, *Tri-Valley Herald*, October 19, 1976.
- ⁹⁴ Letter from Harry Brumbaugh to Robert Wilcox, "Failure of LAWMA Bond Election, November 2, 1976," November 10, 1976.
- ⁹⁵ Minutes, LAWMA Board of Directors Meeting, November 18, 1976.
- ⁹⁶ *ACWD vs. Valley Community Services District, City of Livermore, et. al.*, Alameda County Superior Court Complaint for Injunctive Relief Based on Nuisance, Inverse Condemnation and Damages, Alameda County Superior Court # H-4687-1.
- ⁹⁷ "ACWD begins \$1 million claim on sewage discharges," *Fremont Argus*, June 25, 1977.
- ⁹⁸ Minutes, LAWMA Board of Directors Meeting, March 9, 1978, pp. 1-2.
- ⁹⁹ News-Register, July 21-23, 1970; quote from "Fluoride Enters the Body from Many Sources," July 23, 1970.
- ¹⁰⁰ Minutes, ACWD Board of Directors, 12/10/69 to 11/30/70, August 13, 1970, p. 68.
- ¹⁰¹ Excerpted from Fremont Citizens for Pure Air and Water brochure, "Forced Medication or Voluntary Rx?" 1970.
- ¹⁰² Ibid.
- ¹⁰³ Tri-City Citizens for Dental Health Committee, "Fight Tooth Decay, YES on A, November 2," 1970.
- ¹⁰⁴ "Water District Board Approves Fluoridation Plan," *Oakland Tribune*, June 25, 1951.
- ¹⁰⁵ "Water District is Neither For, Against Fluoridation," *Oakland Tribune*, April 19, 1954.
- ¹⁰⁶ "Fluoridation effort opposed by petition-circulating drive," *Fremont Argus*, August 8, 1970.
- ¹⁰⁷ Letter from Richard Armer to Harry Brumbaugh, November 5, 1970.
- ¹⁰⁸ Minutes, ACWD Board of Directors, 12/10/70 to 6/22/72, November 11, 1971, p. 213.
- ¹⁰⁹ Email Communication from ACWD Well Ordinance Supervisor Michelle Myers, 12/10/13.
- ¹¹⁰ Minutes, ACWD Board of Directors, 4/5/52 to 1/26/56, January 12, 1955, p. 156.
- ¹¹¹ DWR Bulletin No. 81, pp. 30-31.
- ¹¹² Undated Opinion by Legal Counsel Morris Hyman, circa 1960.
- ¹¹³ Memorandum from MP Whitfield to Engineering Dept. Staff, "Procedure for Assuring Proper Sealing of Wells in Subdivisions," December 10, 1955.
- ¹¹⁴ DWR Bulletin No. 81, pp. 41-42.
- ¹¹⁵ Department of Water Resources, Bulletin 118-1, (Sacramento, CA, 1973), pp. 12-13.
- ¹¹⁶ Minutes, ACWD Board of Directors, 7/11/74 to 6/8/76, May 27, 1976, p. 307.
- ¹¹⁷ DWR Bulletin 118-1 on Niles Cone.
- ¹¹⁸ A.J. Brown, "Presentation to Western Snow Conference, The California 2-year Drought," April 18-20, Otter Rock, Oregon.
- ¹¹⁹ "ACWD Will Urge Voluntary Cutbacks in Water Usage," *Fremont Argus*, February 1, 1977.
- ¹²⁰ Department of Water Resources, "The 1976-77 Drought, A Review," May, 1978.
- ¹²¹ Minutes, ACWD Board of Directors, 7/15/76 to 12/29/77, February 17, 1977, p. 137.
- ¹²² Minutes, ACWD Board of Directors, 7/15/76 to 12/29/77, February 23, 1977, pp. 139-140.
- ¹²³ Minutes, ACWD Board of Directors, 7/15/76 to 12/29/77, March 3, 1977, p. 144; March 10, 1977, p. 148; May 23, 1977, p. 196.
- ¹²⁴ Minutes, ACWD Board of Directors, 7/15/76 to 12/29/77, June 23, 1977, p. 217.
- ¹²⁵ "ACWD Okays Big Rate Hike," *Fremont Argus*, July 1, 1977.
- ¹²⁶ "ACWD Ends Mandatory Rationing," *Fremont Argus*, July 2, 1977.
- ¹²⁷ "ACWD Rapped by State for Policies," *Hayward Daily Review*, July 9, 1977.
- ¹²⁸ Bookman-Edmonston and Metcalf and Eddy, "ACWD Water Supply Planning Study," 1986, Appendix, page 2-16.
- ¹²⁹ Minutes, ACWD Board of Directors, 7/15/76 to 12/27/77, September 15, 1977, p. 265.

Water from the Central Valley and the Delta is a component of ACWD's water supply. These waters made headlines during the Peripheral Canal debates.



Chapter 6 • 1978 to 1992: Initiatives and Technology

With Matt Whitfield's retirement, one era would draw to a close and a new one would begin. By 1978, the District had become a well-established and vital regional agency in the Tri-City area. With the incorporation and growing urbanization of the cities of Fremont, Newark, and Union City in the 1950s, ACWD evolved from an agency that predominately served agriculture into one that supplied a growing residential population and an expanding industrial base. After a brief flirtation with using water connection approval authority to limit growth after the failure of the 1972 bond issue, the District once again settled into its well established support role of planning for the water supply and infrastructure needs to meet the cities' plans for growth within their borders.

To finance the facilities required to meet these future demands, the District developed a sophisticated set of fees and charges that would be paid by new development in the service area, with new growth now fully paying its own way without burdening existing customers' costs. Although growth would continue throughout the 1980s and '90s, two other dominant themes would stand out during these years that would characterize the District's activities: the development and use of more sophisticated tools to plan for meeting customer demands in an increasingly uncertain environment for water resource development, and the use of technology to meet customer expectations regarding the quality and reliability of the water supplied to them.

To replace Matt Whitfield as General Manager, the Board selected Stan Saylor, who assumed office immediately upon Whitfield's retirement at the end of 1977. Saylor had served as Assistant Chief Engineer for the District since 1966, heading up the Engineering Department and overseeing the design and construction of the Manuel J. Bernardo Water Softening Plant, the Mission San Jose Water Treatment Plant, and two inflatable dams on Alameda Creek, in addition to new reservoirs and distribution system expansions to keep up with the growing ACWD service area.

Saylor's first challenges would not be engineering ones, however. Within a few months of his appointment, voters would pass Proposition 13, which would dramatically impact the finances of counties, cities, and special districts throughout the state. Although initially uncertain as to how much property tax funding would be lost to the District, it was clear that ACWD would have to change its long-standing practice of setting an annual rate for *ad valorem* taxes, which had been last set at \$0.22 per \$100 of assessed valuation for Fiscal Year 1977-78. These funds were used to pay for costs

“People have to accept the fact that the canal is there and stop wasting their emotional energy about water going to Los Angeles. It's going to go and if it goes without the Peripheral Canal, the Delta will be far worse than it would otherwise.”

– STAN SAYLOR, ACWD GENERAL MANAGER, MAY 1982



Stanley R. Saylor
General Manager 1977 – 1982

A civil engineer trained at the University of California at Berkeley, Saylor had previously worked for the East Bay Municipal Utility District and for the Army Corps of Engineers. Before joining ACWD in 1966, he had served for several years as the Water Supply Manager for the Zone 7 Water Agency, the wholesale water supplier for eastern Alameda County.



Joseph Damas, Jr.
ACWD Director 1979 - 2001
Joe Damas, a water engineer and lifelong Fremont resident, had been raised on a farm in the Centerville District. He graduated from Washington High School and received a civil engineering degree from Santa Clara University.

associated with the “conservation” or groundwater system-related operational and capital costs.

With the passage of Proposition 13, these revenues would decrease significantly. The District would now be receiving *ad valorem* taxes as part of a formula that limited local governments’ share to 1 percent of the assessed value of properties in the areas they served. This effectively meant that ACWD property tax revenues would be slashed from approximately \$1.9 million to less than \$400,000, a drop of 77 percent. At the time of Proposition 13’s passage, property tax revenues made up about 14 percent of the District’s total \$12.2 million budget.¹

To avoid potentially precipitous reductions in service cause by the decline in property tax revenue, the ACWD Board determined to hold a public hearing in August 1978. The purpose of the hearing was to consider petitioning the Alameda County Board of Supervisors to levy a tax on the District’s behalf that would cover the cost of payments for voter-approved bonded indebtedness. This would include payments for the debt service for Improvement Districts 1 and 3, as well as for the State Water Project bond costs. These recommendations were made in light of a state Attorney General’s opinion that a tax override to Proposition 13 could be authorized for previously voter-approved debt. The Board then authorized tax over-

ride amounts sufficient to cover the portion of State Water Project supply costs that was used to replenish the groundwater basin, and for the two District-wide voter-approved bond issuances. Together with the District’s share of the one percent tax levy, total revenues from property tax sources would now total \$1.7 million, a reduction of approximately 10 percent below the \$1.9 million budgeted property tax level, but well above the levels the District would have received had the Board not acted to request the tax overrides.²

After property tax revenues were stabilized, the Board of Directors faced another turnover: John Gomes retired. Gomes had served on the

Board since 1966. A lifelong Fremont resident, Gomes had already served on the inaugural board of the Alameda County Flood Control District before being appointed to the ACWD Board. He had jokingly observed that he thought he was initially appointed “because I knew every mud hole in the area.”³

While residential construction continued and demands increased on ACWD to provide service, the enactment of Proposition 13 resulted in decreased revenues for those services. In 1978, the District installed a pipeline for new service on Stanford Avenue (shown here at Mission Boulevard). Adjacent vineyards were soon replaced by additional homes as the Tri-Cities continued to grow.



Gomes' retirement would draw out four challengers for not only his seat, but also that of Frank Borghi, who was running for reelection. The challengers included recently retired General Manager Matt Whitfield, 19-year-old Fremont resident and U.C. Berkeley student Paul Sethy, former ACWD employee Skip Vargas, and Water Engineer Joseph Damas. Damas was ultimately elected to replace Gomes, and Borghi was reelected to his seat. Sethy was later elected to the Board in 2010.

A lifelong Fremont resident like Gomes, Damas had worked as a Water Pollution Control Engineer for the Regional Water Quality Control Board before going to work for East Bay Municipal Utility District in 1975 as the engineer in charge of EBMUD's industrial waste water control program.⁴ The five Board members serving in 1979 – Frank Borghi, Harry Brumbaugh, Joe Damas, Clark Redeker, and Carl Strandberg – would guide District policy throughout the entirety of the 1980s.

In 1989, ACWD celebrated its seventy-fifth anniversary with the directors who had guided the District throughout the 1980s: (left to right) Frank Borghi, Harry Brumbaugh, Carl Strandberg, Joe Damas, and Clark Redeker.



Soon after the 1979 election, the ACWD Board and staff would find itself embroiled in yet another statewide battle – this time over approval of the Sacramento-San Joaquin Delta project known as the Peripheral Canal. The canal project was, according to historian Ed Hundley, the “first crystallization of the long-anticipated second phase of the State Water Project, a phase that the earlier enabling legislation had broadly defined as virtually anything that lawmakers wanted to add to the state project to help meet local needs or augment the supply reaching the Delta.”⁵

State and federal water planners had long searched for ways to combat the problem of saltwater intrusion into the Delta behind San Francisco Bay. They also sought to mitigate disruptions to fish breeding grounds and other wildlife in the Delta as a result of the enormous diversions from the Central Valley and State Water Projects from the Sacramento and San Joaquin River systems. These planners wanted to design a project that would both protect the Delta, as well as provide more water for state and federal contractors in the Bay Area, the San Joaquin Valley, and in Southern California. By 1965 the Interagency Delta Committee had released a plan calling for design and construction of a 43-mile long, 400-foot wide, 30-foot deep unlined ditch that would begin 20 miles below Sacramento on the Sacramento River and then take a broad eastward-swinging curve south to the state and federal pumping plants near Tracy.⁶

Forever after to be known as the Peripheral Canal, planners hoped the project would assure water users south of the Delta that the water they received would be of the same high quality as when it was originally diverted upstream from the Delta. To protect the Delta, gates located along the canal would release sufficient fresh water to prevent saltwater intrusion. Department of Water Resources planning estimates projected that the canal, along with reservoirs and other facilities included in the original plan, would make nearly 4 million acre-feet of water annually available to the state and federal projects, as well as provide 1.3 million acre-feet to meet the ecological needs of the Delta. The cost for the project was estimated at \$179 million, \$55 million of which would be paid by the state and \$124 million by the federal government.⁷

By February 1970, a majority of the ACWD Board went on record in support of the Peripheral Canal. Finding the facility was “necessary to assure the quality and quantity of future deliveries of water to the State Water Project contractors as well as to protect and enhance water quality,” the Board strongly urged state and federal officials to “take all necessary action to assure the timely construction of the project.”⁸ The following April, Governor Ronald Reagan formally placed the state on record in favor of the Peripheral Canal, stating, “No one has come up with an acceptable alternative,” and calling it a vital part of the state and federal water projects.

Although supported by both the Department of Water Resources and the California Department of Fish and Game, the project was also “bitterly opposed” by state representatives in Northern California, especially in Contra Costa County, who feared that guarantees regarding the canal’s operation, especially in dry years, “were not sufficiently strong and that it could severely damage water quality in the Delta and San Francisco Bay.”⁹

Battle lines over construction of the Peripheral Canal were quickly drawn. Conservationists were concerned that the project would result in a “massive ecological blunder” for both the Delta and San Francisco Bay. Water agencies vehemently argued against these efforts to “strip the [California State Water] Project of its innards – the Peripheral Canal.” In a September 1970 series on the State Water Project, the *San Jose Mercury News* noted, “Most of the powerful lobbying, so far, has been by the vested interests,” but that “general public concern” was “sadly lacking.”¹⁰ Although it would take several years, the level of public apathy regarding the canal would change dramatically.

In 1971, Governor Reagan announced that the state would build the project on its own, after the U.S. Environmental Protection Agency and the U.S. Geological Survey concerns over cost-sharing and other issues caused the federal government to drag its feet in moving toward project approval. However, Reagan also allowed the Department of Water Resources to defer the project until the mid-1970s, by which time the Democratic administration of Governor Jerry Brown had come into office.¹¹

Sacramento-San Joaquin Delta water – and who was entitled to it and at what cost – was at issue during the battles over the Peripheral Canal.



By 1978, Brown administration officials from the Department of Water Resources had reaffirmed support for the Peripheral Canal, seeing the project as the best alternative for both protecting the Delta as well as meeting the water needs of south-of-Delta water suppliers like ACWD. By 1979, Brown had structured a plan to meet the demands of several interest groups either supporting or opposing the project. Northern California interests were promised amendments to the state constitution that made California solely responsible for guaranteeing water quality in the Delta. North Coast rivers were also protected by stipulating that storage projects on the state's wild rivers would require approval by a two-third's vote in the state Legislature. For Southern California, Brown offered both the Peripheral Canal and supporting facilities, while also committing that the constitutional guarantees to placate Northern California would not take effect until the canal had been approved by the Legislature. Agricultural interests were appeased by an assurance that the bill would be silent on the issue of groundwater management.¹²

By late June 1980, the Legislature voted to place the proposed constitutional amendments on the November 1980 ballot, to be known as Proposition 8. By July, SB 200 had also passed, authorizing the Peripheral Canal and other facilities needed to complete the State Water Project and also enacting environmental protections for the Bay-Delta system that would be given constitutional protection if Proposition 8 passed.¹³

The ACWD Board continued to reiterate its strong support for the Peripheral Canal Project, stating in a 1979 customer newsletter: "Early construction of the Peripheral Canal is important to ACWD customers. Without the Canal, it is very doubtful that we can get our full contractual entitlement of the South Bay Aqueduct."¹⁴ After the passage of SB 200 and before the November 1980 election, the Board also went on record in support of Proposition 8, stressing the importance of the constitutional protections contained in the proposition, as well as reinforcing the need for the Peripheral Canal, which would protect fishery and recreational resources, maintain water quality, and ensure that the State Water Project would be able to deliver an adequate supply of water to its contractors.¹⁵

Locally, *The Argus*, which circulated in the ACWD service area cities, adopted an editorial policy opposing the Peripheral Canal and supporting a referendum petition that was then being circulated by the "California Coalition to Stop the Peripheral Canal" that would de-authorize the project. The editorial, "Put an End to Canal Project," encouraged voters "to seek out a referendum petition to sign. It is the only means remaining to prevent the south from stealing the waters of the north for its own purposes."¹⁶

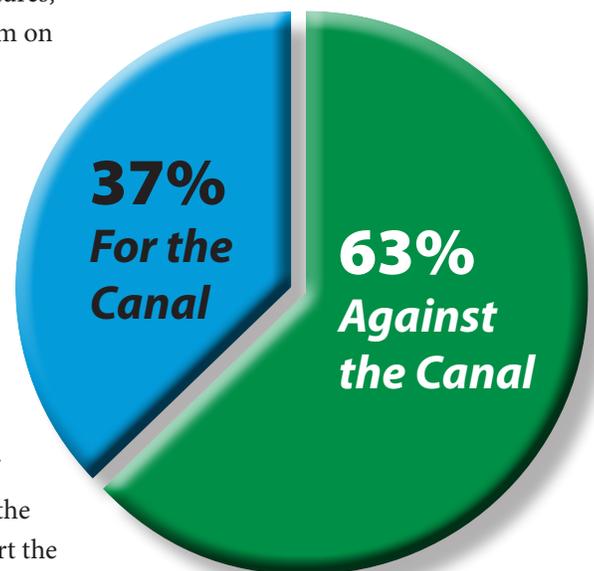
In response to *The Argus* editorial opposing the canal, General Manager Stan Saylor wrote an opinion column that was published on September 7, 1980. Saylor wrote, “While the easiest position in the Bay Area in this political year is to oppose the Peripheral Canal, . . . the cold facts are that if these projects aren’t built, Alameda County Water District will lose 25 percent of the water it will need for the Tri-City area. This is not simply a North-South issue. The Canal is a responsible and necessary project both for ACWD and for the Delta.” Pointing out that the Sierra water supplies meeting the needs of customers in both San Francisco and the East Bay Municipal Utility District service areas also reduced flows through the Delta, Saylor argued that “the canal won’t harm the Delta. It will actually correct environmental problems.”¹⁷

When Proposition 8 went before voters in November 1980, it passed by a vote of 56 percent to 44 percent, winning by a larger margin in Northern California than in Southern California (San Francisco voters endorsed it by a three-to-one margin).¹⁸ In spite of the passage of Proposition 8, the alliance of environmentalists, Delta residents, Northern Californians and Central Valley agribusiness interests that made up the California Coalition Against the Peripheral Canal, as well as other anti-canal groups, continued to gain momentum. The coalition quickly collected 850,000 signatures, more than twice the number needed, to call for a public referendum on SB 200.¹⁹

Scheduled for the June 1982 statewide general election, the campaign for and against the Canal was to become one of the most contentious and expensive in California history. Although supported by the boards of both the ACWD and fellow South Bay Aqueduct contractor Santa Clara Valley Water District, the vast majority of Bay Area governments and elected officials continued to oppose the Canal. Notable exceptions who continued in their support of the project included State Senator Alfred Alquist, who represented both the ACWD service area and part of Santa Clara County, and Fremont Mayor Leon Mezzetti, who was the only mayor out of the fourteen cities in Alameda County to support the Canal.²⁰ The Fremont Chamber of Commerce also expressed its support for the Peripheral Canal and other facilities covered by SB 200, citing the need for a high quality and reliable supply of water for the area to meet future demands.²¹

As it turned out, on June 8, 1982, California voters overwhelmingly approved Proposition 9, the referendum repealing the SB 200 Peripheral Canal legislation, as well as the Proposition 8 protections, by a lopsided margin of 63 percent to 37 percent. Regional differences continued to dominate the vote, with a two-to-one favorable vote in Los Angeles County

California voters overwhelmingly rejected the proposal for a peripheral canal in the Sacramento-San Joaquin Delta in June 1982.



and a twenty-to-one rejection in San Francisco.²² The result was a milestone in California water history, representing the first rejection of a major project since the 1920s. Although it was defeated, the Peripheral Canal debate would inform and shape the debate over the Delta environment and water supply needs for years to come.

With just two months to go before the vote on the Peripheral Canal issue, General Manager Stan Saylor gave notice that he would be leaving the District on May 1, 1982, to enter private practice as an engineering consultant after four and one-half years as General Manager and fifteen years with the District. Saylor's tenure with ACWD was marked by the completion of several critical capital projects, including the Manuel J. Bernardo Water Softening Plant, two inflatable rubber dams on Alameda Creek and several groundwater management projects. He was also instrumental in promoting the development of an emergency preparedness plan among Bay Area water agencies. His parting words on the Peripheral Canal issue were published in *The Argus*, telling the public: "People have to accept the fact that the canal is there and stop wasting their emotional energy about water going to Los Angeles. It's going to go and if it goes without the Peripheral Canal, the Delta will be far worse than it would otherwise."²³



Roy Coverdale
General Manager 1982 – 1987
Hired by the District as an accountant in 1961, Coverdale became the District's fifth general manager in 1982.

Appointed to replace Saylor was Assistant General Manager/Auditor Roy Coverdale. Coverdale had been originally hired by the District as an accountant in 1961 and had spent his career managing the District's finance and administrative activities. Originally from Michigan, Coverdale had attended Hillsdale College in that state before joining the Navy during World War II. Having been stationed in California for part of his service, he returned to the state after the war and settled with his wife and family in Fremont in the early 1950s. His prior experience included work for an insurance company, then in accounting and finance for the state of California, then serving a brief stint with the Internal Revenue Service before joining ACWD as an accountant.

Like Saylor, Coverdale also publicly supported the Peripheral Canal, "mainly on the basis of reports that indicate that the cities served by ACWD risk severe water shortages in a dry year without water supplied by the State Water Project."²⁴ This potential for a significant supply shortfall was echoed in an October 1981 "Water Supply and Demand Study" completed for the District by the engineering consulting firm of Camp Dresser and McKee. The study concluded that projected water demands in the service area were expected to grow by 36 percent by 1990, due to both an increase in population as well as expanded industrial and commercial demands.²⁵ The study also determined that by 1990, during average year hydrology and weather conditions, there should be no supply shortages and that the District should be able to meet demands with its three sources of supply.

Using the 1928-35 extended drought as a predictive base, the study further found that there would be a potential for only short-term, moderate shortages that could occur, assuming that planned “SB 200 facilities” would be built. Without these facilities, there was a potential for a long-term severe supply shortage – during a prolonged drought, State Water Project supplies could be reduced by as much as 35 percent. The study dismally concluded that should SB 200 be defeated in the June 1982 election, and should no alternative sources be developed, ACWD would need to evaluate “potential new District supplies and/or review growth and development policies within the District for possible restrictions on growth and development.”²⁶

The defeat of SB 200, and the resulting potential for future significant supply shortages, brought a renewed emphasis on the need to expand the District’s local groundwater basin supply source. By August 1981, the District had published a Draft Environmental Impact Report on its “Groundwater Recharge Facilities Plan.” Comprehensive in scope, the plan looked to dramatically increase the District’s capacity to capture and percolate additional local winter rainfall runoff from Alameda Creek. Final approval of the EIR and groundwater facilities plan projects was passed by the Board in April 1982. Proposed new facilities included:

In 1982 the Board proposed several new facilities, including a 60-inch pipeline to divert Alameda Creek water into the Shinn Quarry Pit to increase water recharge for the Niles Cone Groundwater Basin.



- construction of a third inflatable rubber dam on Alameda Creek to divert water into percolation facilities in the “Above Hayward Fault” (AHF) area of the groundwater basin;
- placement of a 60-inch pipeline in the Alameda Creek channel bottom between the new rubber dam and Shinn Pit (located in the “Below Hayward Fault” (BHF) area of the basin), which would allow additional water to be diverted from behind the new rubber dam to BHF areas and provide increased operational flexibility and reliability of recharge operations when a portion of the creek channel was otherwise unavailable;
- installation of off-stream filter galleries and recharge wells to better recharge turbid storm flow runoff;
- expanded percolation facilities that would be developed from additionally purchased agricultural and vacant land in the area adjoining Alameda Creek; and
- further development and combining of several BHF pits to create additional percolation area as well as facilitate the future development of recreational facilities in these areas by the East Bay Regional Park District.²⁷



Rubber Dam No. 3 was an essential part of the project to divert Alameda Creek water into Shinn Pitt for groundwater recharge.

While a subsequent study would recommend against construction of the proposed filter galleries and recharge wells, since they were considered unnecessary to achieve desired percolation rates, the majority of the projects proposed in the 1981 Groundwater Recharge Facilities Plan would be undertaken during the remainder of the 1980s and '90s.²⁸ This included construction of Rubber Dam No. 3 in September 1990, completion of the 60-inch Alameda Creek Pipeline by the summer of 1991, and slope modifications and other improvements to both AHF and BHF facilities to stabilize embankments and to increase percolation rates.

Cooperative efforts between ACWD and the East Bay Regional Park District continued with respect to joint planning to develop the 400-acre BHF pits for both water supply and recreational uses. By July 1984, a ten-year development plan was presented to both Boards, and two years later this plan was further developed to include a “multiple lakes” concept that would ultimately become the Alameda Creek Quarries Regional Recreational Area. The major work recommended on consolidating BHF pits would, however, have to await the purchase of the last remaining working quarry in the area, known as “Pit H,” which was owned by the California Nursery Company.²⁹ Among the plans anticipated for this joint development effort were projects to cut back the steep slopes to the quarry pits left behind by the quarry operators. This would both allow for future development of what would eventually become swimming lagoons and fishing lakes, as well as create more area for water to percolate into the groundwater basin.

In addition to plans to further develop local supplies to meet future demands, the District firmed up both the cost and amount of its San Francisco water supply with the adoption of a Master Water Sales Contract based on the settlement agreement negotiated between San Francisco and its twenty-nine wholesale customers, including ACWD. The existing twenty-year agreement between the District and San Francisco was set to expire at the end of November 1985. While the old contract specified the quantities of water that contracting agencies would receive, it was generally silent about the criteria for determining the price of water delivered. The new agree-



ment now laid out specific methodologies for how costs would be allocated between in-city San Francisco retail water users and the suburban wholesale customers to ensure that these customers did not pay for projects and programs that exclusively benefited San Francisco retail customers. Equally as important, the agreement spelled out the methods that would be used to determine the annual collective suburban revenue requirements. ACWD's share of the 184 million gallon per day (mgd) "supply assurance" that was also agreed upon was 12 mgd, or 13,400 acre-feet per year.³⁰

The early 1980s also saw some important additions to District staff. In April 1983, James D. Beard was hired as the District's Assistant General Manager. Upon his arrival, Beard took over management authority of the day-to-day activities of the District, including supervision of the Engineering, Operations and Finance Departments. His expertise in water quality management would soon prove invaluable, as the District was faced with increasingly complex issues relating to maintaining the quality of both its surface and groundwater supplies.



Even as surface water projects progressed, ACWD continued to manage and develop groundwater resources. Shown here in 1982, staff developed, tested, and drilled new wells.



James D. Beard

James D. Beard came to ACWD with a wealth of experience in water treatment and California water policy, having served as General Manager of the Stockton East Water District for over two years. He also had worked for the Metropolitan Water District of Southern California in several engineering and water quality capacities, leaving after fourteen years as the agency's Water Purification Engineer. A registered manufacturing engineer, Beard held degrees in manufacturing engineering from California State University, Long Beach and a master's degree in sanitary engineering from Loyola-Marymount University.

By Beard's arrival in 1983, the District had already begun experiencing the combined effects of increasingly stringent water quality regulations and degraded source water quality in its State Water Project supply arising out of the state's inability to agree on an acceptable solution to the many problems in the Delta. This would soon translate into the need for more complex and expensive capital projects to treat State Project water to provide the state-of-the-art equipment and facilities needed to ensure the safety of the District's water supplies.

Through the 1970s, water treatment was relatively straightforward and the District easily met federal and state regulatory standards. But by 1980, the declining quality of water imported from the Delta was proving this simpler treatment approach to be inadequate. The Sierra Nevada snowmelt that traveled through the Delta river system was increasingly subject to heavy amounts of agricultural pesticides and runoff of naturally occurring organic materials from peat soils, as well as saltwater intrusion from San Francisco Bay. The decrease in quality of this water was matched by an increase in the chemicals required to treat it. For water agencies throughout the state, the era of spending more for treatment of water and investment in more sophisticated treatment methods had begun.

While the conventional surface water treatment process was effective in removing peat and other substances from Delta water, it could not effectively deal with the chemical reaction that occurred when the organic materials common in Delta water interacted with the chlorine that was added to

the water to kill bacteria and other pathogens harmful to humans. These organics and chlorine reacted to form treatment by-products. One of these, trihalomethanes, or THMs, was of particular concern to the EPA since it had initially been determined to potentially pose a risk to public health at higher levels of concentration. The EPA had established an interim maximum contaminant level of 100 parts per billion for total trihalomethanes and put water utilities serving over 10,000 people on notice that they needed to address disinfection byproducts formation.

During the dry summer of 1981, the water moving through the Delta contained more organic compounds than usual, making it increasingly difficult for the District to comply with federal THM standards in the water produced by the Mission San Jose Water Treatment Plant (MSJWTP). ACWD staff began investigating alternative methods of disinfection and by the fall of 1983 it had implemented a modified treatment process at the plant. Instead of using straight chlorine to disinfect the water, the modified process used chloramines – a mixture of chlorine and ammonia. This relatively simple process was already in use in Contra Costa and Santa Clara Counties, and had been in use by large cities such as Philadelphia since the 1930s, primarily as a way to maintain an adequate chlorine residual in distribution systems.³¹ The application of chloramination successfully allowed the District to meet or exceed the U.S. EPA's THM standard even in the face of increasingly degraded Delta water quality. This would be the first of many adaptations that District staff would need to make to its treatment processes to keep pace with constantly evolving health standards.

The mid-1980s would also soon usher in a period of accelerated activity with respect to the District's long-range planning efforts. This included the May 1984 authorization of a 25-year Supply and Facilities Planning Study, which would be jointly conducted by the consulting firms of Bookman-Edmonston and Metcalf and Eddy. The study would take a comprehensive look at future water demands, surface and groundwater supplies, groundwater hydrology, water quality management, as well as the coordinated use of supplies and future required capital facilities through 2010.³²

Using this study as its basis, ACWD staff would then develop a comprehensive, 25-year Capital Improvement Program, which would include all projects required to both maintain the existing water supply and distribution



In the 1980s, snowmelt from the Sierra Nevada that traveled down the mountains and through the Delta river system, brought with it increasing amounts of agricultural pesticides and organic materials. Chemicals commonly used to treat water reacted with the organic materials, requiring the District to find more sophisticated ways to treat Delta water.

system, as well as projects required to accommodate growth. Cost estimates for these projects would then be updated annually, and a determination made as to the required contribution by both existing ratepayers as well as future development. In addition, a rate model would be developed which would incorporate all known or anticipated operating and capital costs and revenues, and then project the rate increases required for both existing customers and new development charges to meet these revenue projections. By looking several years in advance, the District would be able to better

program rate increases on a more regular and uniform schedule than had previously been the case, in which several years might pass without any increase in rates, followed by a large increase in one year (for example, a 30 percent commodity rate increase was adopted in 1982, five years after 1977's 25 percent increase)³³ to ensure that revenues kept pace with expenses.

While looking to better plan for the future in relation to future demands, capital facilities, and finances, the District also made plans to ensure that its future headquarters and corporation yard facility kept pace with growing needs. The existing facility on Fremont Boulevard in central Fremont had served the District since 1955. By the 1980s, the existing headquarters building and corporation yard no longer met the needs to house a growing workforce, which now numbered more than 150 staff, as well as materials and storage needs required to keep up with a constantly expanding water distribution

system. In addition, the existing facility's location on Fremont Boulevard in Centerville was no longer consistent with the surrounding neighborhood, which had grown over the years to include both homes and apartment complexes which now pushed up on the border of the headquarters/corporation yard area.

Plans to relocate had been made as early as the mid-1960s, when General Manager Matt Whitfield had recommended purchasing a ten-acre site on Grimmer Boulevard in the Irvington area – several miles south of the existing headquarters – as a future headquarters site. The site was ultimately purchased in 1966 for a cost of \$10,000.³⁴ In 1984, General Manager Roy Coverdale recommended that the Board authorize staff to offer the existing headquarters site for sale, and to then use the proceeds to pay for a portion of the design and construction costs of a new facility on the Grimmer Boulevard site. Since development fees had also been collected over the



The District built a new headquarters and corporation yard facility in 1985. Director Harry Brumbaugh is shown (above) with the architectural rendering prior to the building's construction.

years to fund a future, expanded headquarters site, the cost of the facility would be fully paid for without the need for any debt financing. The Fremont Boulevard site was sold in the winter of 1985 for \$2.6 million.

Built at a cost of \$7 million, District staff moved into the new 60,000-square-foot headquarters and corporation yard facility on Grimmer Boulevard in September 1985. According to General Manager Roy Coverdale, who was intimately involved in the design of the new building, “We wanted a facility that promoted openness and cooperation between departments and units within the District.”³⁵ With additional room for expansion built into the plans, it was anticipated that this would become the District’s permanent home in the service area.

Soon after moving to the new headquarters, the comprehensive Supply and Facilities Planning Study (Study) that had been authorized by the Board in 1984 was finally completed. The Study projected both future water demands, as well as the capital facilities required to meet these demands in the most cost-effective and efficient manner possible, through the year 2010. The Study carefully analyzed the District’s groundwater and surface water production systems, and made several recommendations for their coordinated use.



Director Brumbaugh and General Manager Coverdale visited the construction site of the new District headquarters facility.

Many of the facilities recommended in the 1981 Groundwater Master Plan were confirmed as still required to maintain and increase groundwater production to meet future demands, while ensuring that the groundwater basin was not overdrafted (thus avoiding further salt water intrusion). The Study also concluded that an additional surface water treatment plant should be constructed, initially recommended at a 9 million gallon-per-day capacity, to avoid overdraft conditions in the groundwater basin and to meet projected 2010 demands. To cope with times of drought and shortage, the study further recommended that the District continue with design and construction of its long-planned Salinity Barrier Project. This project would permit operation of the groundwater basin with water levels below sea level when inadequate supplies were available to replenish it due to droughts, while at the same time preventing additional sea water intrusion.³⁶

The Study further recommended the decommissioning of the Manuel J. Bernardo Softening Plant, which chemically softened the hardness of well water from the Peralta-Tyson and Mowry Wellfields through an ion-exchange process. The plant was reaching the end of its useful life, and was proposed to be replaced with a blending facility that would hydraulically mix harder well water with softer Hetch Hetchy San Francisco supplies. This would require construction of a new 22 million gallon-per-day,



The District outgrew its facility in Centerville and in the 1980s built its present headquarters on Grimmer Boulevard in Irvington.

30-inch diameter pipeline to convey San Francisco water to the wellfields for blending, as well as the pipelines for blending the waters and for carrying it away from the wellfields into the distribution system.

The study also recommended that the District begin a search for supplemental storage of State Project water when excess was available during wet years for use during dry years when there would be supply cutbacks. Although some potential alternatives were mentioned at that time (such as utilizing the groundwater basin in neighboring Sunol or expanding Del Valle Reservoir), there was no definitive endorsement of any particular storage option by the consultant.

By the end of 1986, the Board had adopted the Supply and Facilities Planning Study as a planning guide for future capital facilities, approved the use of the long-range financial model to determine future revenue requirements, and moved forward to adopt the District's first 25-year Capital Improvement Program, which was projected to cost \$133 million through 2010. The included projects required to meet future increased demands, which would be funded by developers, as well as projects that would benefit existing customers, which would be funded from water rates, including

Workers placed rebar on the foundation slab during construction of the Blending Facility in 1993.



funds to replace infrastructure, such as pipelines and production facilities, which would be approaching the end of their useful life by the close of the 25-year planning cycle. Both the financial model and Capital Improvement Program would be reviewed and updated annually in advance of any proposed recommendations on customer and developer rates and charges.

In February 1987 – with these changes in place and with District staff successfully moved to the new headquarters facility – Roy Coverdale announced his retirement from the District after twenty-six years of service and after five years as General Manager. An article in *The Argus* announcing news of Coverdale’s retirement was titled “Water District Boss Gets Flood of Praise,” highlighting not only his accomplishments during his tenure, but also emphasizing that he was “living proof that nice guys don’t always finish last.”³⁷

The following week, the Board announced that Assistant General Manager Jim Beard, “a recognized expert in the water treatment field,” would succeed Coverdale as General Manager. Beard emphasized at the time of his appointment the District’s efforts to plan for meeting future demands, with peak water production capacity increasing from 74 million gallons per day in 1987 to nearly 86 million gallons per day by 1988, as a result of new wells and other production facilities coming online by that time.³⁸

One of Beard’s first actions as General Manager was to propose that the Board approve funding for a “dry year contingency reserve” as part of the 1987/88 budget. The purpose of this reserve, according to Beard, was to “avoid the problem that the District and many other agencies faced during the 1977 drought – having to raise rates higher than would have normally been required during times of normal supply and demand conditions because customers had conserved water in response to water agency requests to do so.”³⁹ To avoid this eventuality, the reserve projected the revenue required to make up for two consecutive dry years in which customers conserved 25 percent of normal demand. This money would then be set aside and used to make up for any funding shortfalls during times of drought. As events would soon confirm, this idea could not have come at a better time in the District’s history.

The newly adopted Capital Improvement Program incorporated several projects slated to be completed over the next five years, including the new



General Manager Jim Beard (above and below) gave tours of construction at the Whitfield Reservoir, a 20-million gallon structure on Paseo Padre Parkway and Washington Boulevard in Fremont. To blend the reservoir into the surrounding neighborhood, the District built the reservoir completely underground.





When the Manual J. Bernardo Softening Plant was built in 1969, it was state of the art. The plant was replaced in 1992 with a blending facility.

blending facility and a new water treatment plant, as recommended in the Bookman-Edmonston/Metcalf and Eddy Supply and Facilities Planning Study. Work immediately began on conceptualization and design of these two important water production projects, in addition to the design and construction of more production wells, pipelines, and pumping facilities required to keep up with growth in the distribution system.

The District constructed a 20-million-gallon reservoir on Paseo Padre Parkway and Washington Boulevard in Fremont – the Whitfield Reservoir. Completed in 1985, the reservoir increased the District's distribution system storage by approximately one third, to 83 million gallons. To accommodate the large area required for this amount of storage and to blend in with the surrounding neighborhoods, the Whitfield Reservoir was constructed completely underground on the 12-acre site, with an overlay of approximately two feet of soil on top of the 100,000-square-foot concrete structure.

Smaller facilities that added to the District's distribution system storage would be built over the next several years, funded in large measure by developers constructing housing developments in the higher elevations of the District. These included the half-million-gallon Vineyard Heights Tank in 1987 and the 2.75-million-gallon Avalon Tank in 1995.

The first production facility to be tackled in the newly adopted Capital Improvement Program was the design of the hydraulic blending facility recommended by the Supply and Facilities Planning Study. A major source of customer complaints and inquiries over the years had to do with daily variation in water from different sources. The District had three distinct sources of supply – groundwater which was softened at the Manuel J. Bernardo Softening Plant, treated surface water from the Mission San Jose Water Treatment Plant, and water from San Francisco's Hetch Hetchy system. Each of these supply sources served a particular geographic area within the District, but the borders of these areas varied depending upon customer demands. A customer might receive groundwater with high mineral content during one portion of the day, and then soft San Francisco water at another time. Such daily variations were found to result in higher levels of customer complaints than if customers received a consistent quality of water at their home.⁴⁰

Another goal of supply blending was to create more uniform quality water from the District's three sources throughout the District. This could be accomplished by creating a blended supply of San Francisco water and groundwater which closely matched the hardness of the water produced by the District's Mission San Jose Water Treatment Plant, at approximately 150 parts per million of hardness (measured as calcium carbonate). By blending harder groundwater with the softer San Francisco water, the wide

variation between areas receiving groundwater and areas receiving San Francisco water would be dramatically reduced.

To ensure that the proper blend of supplies was achieved, the District contracted with the National Food Laboratories to create a flavor profile analysis of blended and unblended District water supplies. This study confirmed that blending would enhance the flavor profile of water delivered to

District consumers by “moderating significant differences between sources.”⁴¹ Further, hydraulic blending was confirmed to be a cost-effective means for reducing groundwater hardness without incurring the high capital and operating costs associated with mechanical water softening facilities, saving the District nearly \$18 million over a 25-year period.⁴² The ultimate goal of blending, which would be implemented in three phases, was to bring the hardness of the blended water down to an average 150 parts per million once all phases were operational.

Phase 1, which would be online by 1992, would significantly lower the hardness of the groundwater, but would not achieve a year-round blended hardness of 150 ppm until more soft San Francisco supplies were available at the new blending facility. To make more San Francisco supplies available, it was determined that a new 22-mgd pipeline was needed to carry the soft San Francisco water to the Peralta-Tyson production wellfield for blending. The reason for this was that, during expected high summer demand periods, there would be insufficient San Francisco water to blend.

With a new surface water treatment plant expected to come online by 1993, additional lower hardness supplies would be available to serve District customers. Planning



Directors Carl Strandberg and John Gomes toured the Bernardo Water Softening Plant when it was dedicated in 1969. It was replaced in the 1990s by a plant that would blend water from several sources in order to provide ratepayers with water “softness” that was consistent.

for the new plant, recommended in the Supply and Facilities Planning Study, occurred simultaneously with the design of the Blending Facility. This study recommended that the new plant have an initial capacity of 9 mgd, which would be base-loaded throughout the year to ensure that the plant was operated as cost-effectively as possible. This original recommendation was modified by District staff to an increased capacity of 14 mgd, to allow for a lower level of production at the existing Mission San Jose Water Treatment Plant (which was scheduled to undergo planned upgrades and renovations) as well as allow for higher groundwater levels to be consistently maintained during high water demand periods. Subsequent analysis would determine that it would be most cost-effective to build the plant to the ultimately planned 28-mgd capacity.

Preliminary work on a second surface water treatment plant had already begun as early as 1980, when a consultant’s report narrowed the range of potential sites down to three.⁴³ A final recommendation on a site was made by 1983 – an 18-acre site at the corner of Mission Boulevard and Interstate 680 in Fremont; the site was ultimately purchased at a cost of \$1.025 million.⁴⁴ By 1988, the Board of Directors had authorized selection of a consultant to begin work on the treatment process design for the new plant, and also authorized staff to proceed to finalize the purchase of the entire remaining capacity in the South Bay Aqueduct down to the site of the proposed new plant, at a cost of \$1.3 million.⁴⁵

With preliminary work done with respect to the site and processes proposed for the new plant, the next step was to begin work on the expected environmental impacts from the plant, and to initiate a dialog with residents in the surrounding neighborhood about the plant, which would be operating near a residential neighborhood directly to the west of Mission Boulevard. To that end, a public meeting was held at Mission San Jose High School on April 7, 1988, with approximately 70 residents in attendance. Major concerns expressed by residents surrounding the proposed plan site

Director Frank Borgi participated in the ceremony to “turn the valves” and start up the Blending Facility in 1992.



included safe handling of chemicals, the appearance of the plant, and issues related to noise, odors and potential traffic congestion.

By April 1989 the additional studies to address neighborhood concerns had been completed. The Board of Directors held a public meeting to hear the recommendations based on the study results and to consider certification of the Environmental Impact Report on the treatment plant project. A broad range of alternatives was considered, including over fifty different alternatives that dealt with chemical storage, the handling of solids generated by the water treatment process and the aesthetics of the plant's appearance. To minimize concerns over the potential for a release of gaseous chlorine, it was determined that only a liquid solution of chlorine would be used at the plant.

Neighbors had been concerned that large solids drying ponds would be visible on the site as well as create potential odor problems. To address this, it was recommended that the District install a mechanical solids handling process that would more effectively dewater the solids residue and thus minimize the frequency of truck trips required to haul the solids away from the plant for disposal.

The District worked closely with the local community in its design and construction activities for Water Treatment Plant No. 2 at Mission Boulevard and Interstate 680 in Fremont.



ACWD Pioneers Use of Ozone Disinfection

Because of neighborhood concerns, the District extended the period for preparation of the Environmental Impact Report on Water Treatment Plant No. 2 to specifically address the issues raised. In addition, based upon the recommendations of the District's design consultant (Camp Dresser and McKee), the District began evaluating the use of ozone as the primary disinfectant for the Delta water that would be treated at the plant. The use of ozone would reduce the need for chlorine disinfection by 75 percent, and would thus greatly reduce the formation of disinfection byproducts in the treated water produced at the plant.

At the time that the use of ozone to treat Delta water was being piloted by the District in the late 1980s, its use was relatively rare in the United States, although it had been commonly used in Europe for several decades.⁴⁶ Ozonation was found to also help with reducing taste and odor issues that sometimes occurred in Delta water supplies.

Since generating ozone requires a considerable amount of electrical energy, the District also began to explore taking advantage of the 354 foot elevation drop from the Bayside Turnout of the South Bay Aqueduct to the new plant site by constructing a hydroelectric facility. With the treatment plant operating at full capacity, the hydroelectric plant would generate sufficient electrical energy to power the entire plant, as well as have energy left over to supply to Pacific Gas and Electric Co. to supply homes and businesses in the Tri-City area. The facility would generate sufficient energy to power 450 homes for a year.⁴⁷



The District pioneered the use of ozone to treat Delta water in its Water Treatment Plant No. 2 in the late 1980s.

To address aesthetic concerns, the footprint of the entire treatment process was greatly minimized by double-decking the eight large sedimentation basins required in the treatment process into four. This design change meant the plant would take up only slightly more than one-fifth of the 19-acre site.

To reduce maintenance and noise impacts, non-mechanical equipment alternatives were used wherever possible, and by employing suitable housings or enclosures for the mechanical equipment. The design of the plant would allow for the process deck to be hidden from view behind a control

building designed to have an “estate-like setting” look, incorporating front landscaping and fencing that would be compatible with the surrounding neighborhood.⁴⁸

At a neighborhood meeting once again held at Mission San Jose High School, approximately fifteen residents attended, and, according to General Manager Jim Beard, “although there were a few detractors, the majority of residents appeared to understand and accept the District’s efforts to build a facility that was compatible with the neighborhood and which addressed the concerns originally expressed by the residents in the surrounding area.”⁴⁹ According to one nearby resident at the time, the District did “take some of the things said at the last meeting, and I’m pretty pleased about that,” while another resident added that she was not “quite as disappointed as I might have been” because of the District’s efforts to address their concerns.⁵⁰

The Board certified the Environmental Impact Report on the plant in April 1989. The \$32 million facility was completed in 1993, with water from the plant being served to area residents by September 1993.

The *Mercury News* wrote an article at the time the ACWD Board acted to purchase the mechanical press that would be used to dewater the solids that are produced during the water treatment process (in lieu of constructing large drying ponds on the site.) The article’s headline captures the District’s commitment to ensuring that resident concerns were addressed: “Beauty has \$900,000 price tag at treatment plant in Fremont.”⁵¹

Risk of Hazardous and Toxic Spills Increases

Improving the quality of the water supplied to the District encompassed more than ensuring that its water production and treatment plants incorporated the best available technologies. The protection of local sources of supply also continued to be an important policy priority of the Board of Directors. This included ongoing monitoring and analysis of the Alameda Creek Watershed to minimize the risk of upstream pollution, spearheading an effort to prohibit the transport of hazardous materials traffic along the roadway running through the sensitive Niles Canyon corridor, and the development of an aggressive, locally tailored oversight program for the detection and cleanup of leaking underground fuel tanks in the service area.

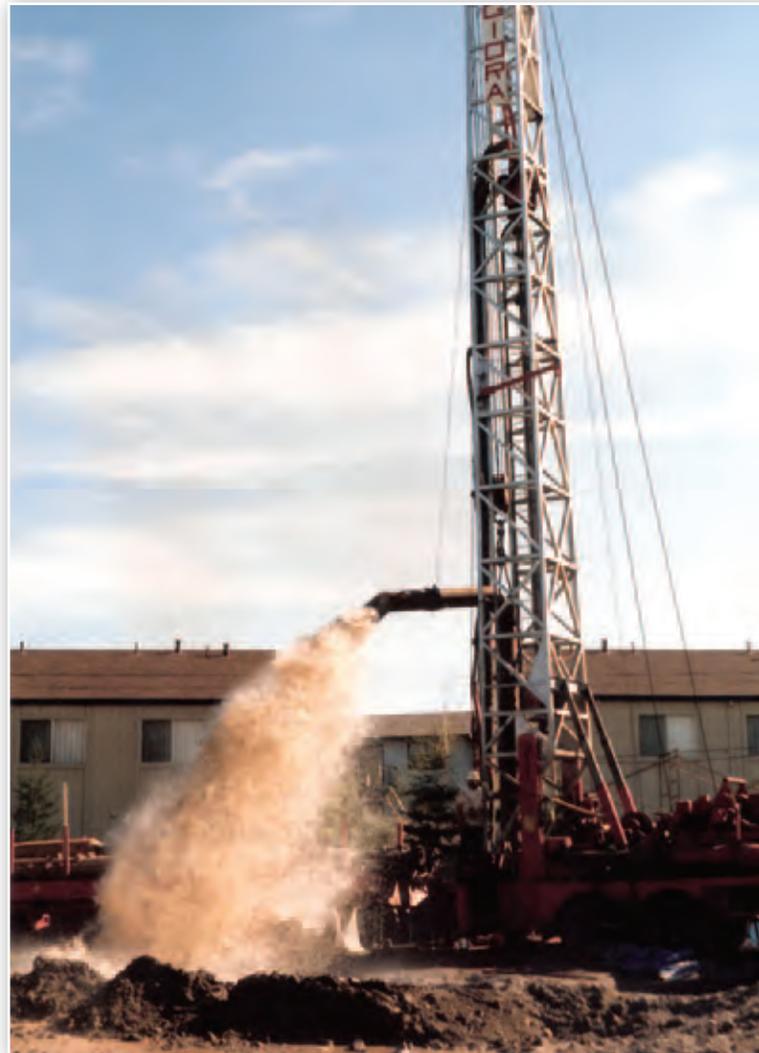
During the 1970s, numerous toxic spills and catastrophes that had occurred across the nation highlighted the need to better control the dumping and careless storage of toxic and hazardous waste. By 1979, the U.S. Environmental Protection Agency had estimated that “thousands of inactive and uncontrolled hazardous waste sites in the U.S. could pose a serious risk to the public health.” In response, Congress passed the Comprehensive

Environmental Response Compensation and Liability Law, which was signed into law in December 1980. It was dubbed the “Superfund law” for the \$1.6 billion Superfund Trust Fund set up to provide financing for the cleanup of toxic sites. Funding for the Superfund would come from a tax paid by manufacturers of chemicals and from portions of court judgments against polluters.⁵²

A leak from the Amchem plant in the Niles district of Fremont highlighted the potential vulnerability of ACWD’s local supplies to spills of hazardous substances. On January 31, 1978, a failure at the plant resulted in the discharge of the chemical 2,4-D into Alameda Creek (the Amchem plant was located adjacent to Alameda Creek). Quick action was taken by District staff to lower the inflatable dams across Alameda Creek and to flush the polluted water into San Francisco Bay to prevent any seepage into local aquifers. The costs for the District labor and lost water amounted to over \$5,000, which the Board directed staff to recover from Amchem. Further, on February 9, 1978, the Board directed staff to identify all potential dischargers of pollutants within the Alameda Creek Watershed and to “develop contingency plans to deal with a spill from any of these sources.”⁵³ Thus began a further expansion of the District’s ongoing efforts to protect local water supplies from contamination.

There were other threats to the groundwater basin, in addition to the potential for chemical spills into Alameda Creek. These included leaks from the many underground fuel storage tanks scattered throughout the District’s service area. That threat manifested itself twice in 1983, when two gas stations in Fremont sprang leaks from their buried storage tanks. Although neither spill reached the District’s drinking water supply, according to then-District Assistant General Manager Jim Beard, the District was “monitoring more wells more frequently . . . because we know there is a potential threat out there.”⁵⁴ In general, however, a newspaper article at the time concluded, “Luck and topography have spared ACWD’s underground water supply from hazardous material contamination.”⁵⁵ This was because the majority of the area’s industrial development was down-gradient from the District’s production wellfields at Peralta and Mowry Boulevards in Fremont.

Coincidentally, in 1983, Assemblymember Byron Sher of Palo Alto sponsored a statewide Underground Storage Tank Law that authorized cities and other local agencies to develop programs for regulating the design and



A drill rig installed a water well at the Mowry wellfield in 1989. The safety of District groundwater became an issue in the late 1980s as cities throughout the state addressed leaking underground storage tanks. ACWD developed a local program to monitor area problems and the District’s wellfields and groundwater supplies.

construction of underground storage tanks and to require monitoring and leak reporting. ACWD staff rapidly went to work on developing guidelines for construction of monitoring wells. With the goal of keeping tabs on the quality of water in the Niles Cone Groundwater Basin, District staff also developed and maintained a database of monitoring wells and leaking underground storage tanks. By 1987, the number of leaking tank removals and installation of wells around existing tanks to monitor for leaks was consuming a considerable amount of the ACWD Groundwater Resources staff time. In January, it was reported that leaking underground tanks and above-ground spills had resulted in 75 cases of ground contamination by either above-ground spills or below-ground leakage.

To comply with the 1983 Sher bill, the three service area cities all began an aggressive three-year underground tank monitoring program “aimed at hunting down leaks.”⁵⁶ The State of California soon proposed to fund the cost incurred by local agencies involved in these efforts. However, the funding came with strings attached with regard to the setting of priorities for sites to be addressed under the program. ACWD staff recommended to the Board of Directors that the District not pursue the state funding and to instead develop an alternative local program that would allow for local oversight of fuel leak cleanups. This would also allow staff to prioritize leaking fuel tank cases in relation to the level of threat posed by the leak to the District’s wellfields and groundwater supplies. The ACWD Board strongly endorsed staff’s recommendation, even adding more staff to support the expanded program through the District’s groundwater replenishment assessment charges.⁵⁷



Alameda Creek flows beside Route 84 along a narrow seven-mile stretch through Niles Canyon, creating the potential for hazardous materials spills into the creek.

Efforts to protect the Alameda Creek Watershed from potential pollution extended to the Niles Canyon Corridor, through which Alameda Creek meandered on its way to the developed flood control channel in Fremont below Mission Boulevard. Over 30,000 acre-feet of water annually, consisting of both local runoff and State Water Project supplies, flowed through Niles Canyon on its way to replenish ACWD groundwater supplies. Niles Canyon Road, or Route 84, followed along next to the creek’s path as it traveled through the seven mile canyon area. A narrow seven-mile stretch of road extending from Interstate 680 to the east to Route 238/Mission Boulevard to the west, with many twists and turns, the roadway had historically been the sight of frequent automobile and truck accidents. At several points through Niles Canyon, Alameda Creek flows only a few feet from the roadway. A spill of a hazardous material into Alameda Creek at one of these critical points could result

in a costly loss of water supply, or even in the potential contamination of portions of the groundwater basin if not caught in time.

Directors Frank Borghi and Harry Brumbaugh raised the concern about the potential for a hazardous material spill in the canyon from a gasoline transport truck or some other chemical hauler. This was especially timely, since it appeared that traffic through the canyon was on the increase, as commuters and delivery trucks sought a shortcut to the Tri-City area to escape congestion on the Interstate 680 freeway. There was also no prohibition in place to keep haulers of hazardous materials out of the canyon area. Confirming the increase in local traffic and accident rates through the canyon, a 1988 ACWD staff study recommended several alternatives, either through new legislation or through the application of existing laws, to prohibit the transport of hazardous materials through the canyon area.

After reviewing the study, the ACWD Board on February 8, 1989, passed a motion to proceed with actions to limit the transport of hazardous materials on State Route 84 through Niles Canyon, with a specific request to be made to the California Highway Patrol to initiate a study to determine whether or not this stretch of road should be deemed too dangerous for such transports, under existing Vehicle Code provisions. Failing the initiation of such a study, the Board further directed that Assemblymember Delaine Eastin be requested to carry legislation prohibiting hazardous material transport through the area.⁵⁸

After securing the support of the Fremont, Newark, and Union City city councils, as well as Alameda County Supervisor Ed Campbell, Assemblymember Eastin introduced AB 815, calling for the restriction of the transport of hazardous materials on Route 84 through Niles Canyon and designating the roadway as a California Scenic Highway (to allow local jurisdictions to better control development that would be considered incompatible or damaging to the surrounding environment).⁵⁹ By the summer of 1989 the bill had passed the state Assembly and was on its way to the Senate for consideration. Concerns over potential conflicts between AB 815 and existing laws now finally prompted the California Highway Patrol to initiate a study of the roadway and to consider administratively prohibiting hazardous material haulers from the area out of concerns about



Accidents and spills in Niles Canyon threatened Alameda Creek. A Phillips 66 tanker tipped over in August 1971 (above). This was one of the incidents that spurred the District to advocate for a ban on hazardous chemical transport on Route 84, Niles Canyon Road.

the potential effects of a spill on the Alameda Creek watershed. By the fall of 1989, the CHP had concluded that the prohibition could be accomplished under existing laws, and that it was warranted because of high accident rates and the road's proximity to a sensitive water supply area. Its goal having been accomplished administratively, AB 815 was eventually pulled from further consideration by the Legislature.



The District ultimately was victorious in its efforts to ban the transportation of hazardous materials through Niles Canyon, increasing water quality protection for a vital source of water supply for the District.

With the prohibition against transport of hazardous materials through Niles Canyon now in place, the ACWD Board next commissioned a wider-ranging study that would identify both general and specific pollutant sources within the entire 633-square mile Alameda Creek drainage area, and to assess their relative impact on water quality in the Niles Cone Groundwater Basin. Completed by a consultant in April 1990, the study found that the water quality in Alameda Creek was generally good and not threatened by activities in the watershed, except by the trend toward increased urbanization and the possibility of accidental spills of hazardous materials. Further, increased urbanization in the Livermore-Amador Valley, where population was expected to increase by nearly 80 percent by 2005, could add pressure to resume wastewater discharges into Alameda Creek, which had been successfully stopped in 1980. Perhaps most dramatically, the study found that nitrate concentrations in Alameda Creek had been reduced by 80 percent since 1980, when effluents from the two municipal wastewater treatment plants in the watershed began to be exported into an outfall in San Francisco Bay through the LAVWMA pipeline.

Overall, even with the expected increase in urbanization (urban uses comprised only 2.5 percent of the upper watershed in the early 1980s) projections estimated that no organic or inorganic contaminants were expected to increase to levels near current or proposed drinking water standards. The watershed survey did recommend several actions to improve Alameda Creek water quality. These related primarily to better coordination with responsible agencies in the watershed to ensure timely responses to hazardous material spills to storm drains and streams that were tributary to Alameda Creek and working with property owners to identify and mitigate specific problems and concerns.⁶⁰

The Quarry Lakes Project Becomes Possible

In addition to taking measures to further protect the Alameda Creek Watershed, the final piece in ACWD and East Bay Regional Park District planning for the Quarry Lakes Regional Recreational Area fell into place in 1990. Because negotiations with California Nursery Company, owner

of the last remaining privately owned quarry pit in the area had not been successful, ACWD and East Bay Regional Park District acted to initiate a condemnation action against the pit owner. In February 1990, both agencies adopted resolutions of necessity declaring the need to acquire the 72-acre property. Following two years of further negotiations and court proceedings, the parties finally settled in 1992 on a \$2.5 million payment for the property, to be jointly shared by both districts.

After twenty years of effort to acquire the necessary lands, ACWD and EBRPD were finally ready to begin planning the capital projects necessary to both enhance the area's groundwater percolation capacity by grading back the steep banks left behind by the quarry operators, and to pave the way for the further development of a park once the grading work was done.

Work on the Blending Facility, Water Treatment Plant No. 2, and on preserving and protecting the District's local groundwater supplies progressed against the backdrop of a long-term, statewide drought that began in 1987 and would not end until 1993. By March 1988, District staff was reporting to the Board of Directors that statewide runoff from snow and winter rains amounted to only 60 percent of normal, and that customers should be encouraged to begin voluntarily conserving water. Although having multiple sources of supply made the District's situation somewhat more favorable than other Bay Area water agencies, by April 1988 San Francisco was proposing a 25 percent reduction in the supplies it delivered to its suburban customers, which amounted to a 7 percent reduction in total water use in the ACWD service area. The ACWD Board took action to set a 10 percent voluntary reduction goal for its customers.⁶¹

By June 1988, ACWD customers were being congratulated for their efforts at voluntary conservation – customers had conserved in excess of the 10 percent reduction goal in both April and May of 1988.⁶² A second dry year in 1988-89 led to continued uncertainty on the statewide water picture; the dry winter could lead to a cut-back in State Water Project supplies, which would be complicated by a continued reduction in San Francisco supplies.



Assemblymember Delaine Eastin joined the District for the groundbreaking ceremony for Water Treatment Plant No. 2. She is pictured with (left to right) Clark Redeker, Carl Strandberg, Tim Rollisson, Joe Damas, Frank Borghi, and Jim Beard.

ACWD customers continued to voluntarily conserve during this period as well, achieving in excess of a 10 percent reduction below 1987 usage. By February 1989, the Department of Water Resources announced the possibility of a 15 percent to 25 percent cutback in ACWD's State Water Project supply. Fortunately, heavy rains fell in March and more extreme conservation measures were not required. The March rains sufficiently boosted water levels in statewide storage reservoirs to enable delivery of 100 percent of the State Water Project to its municipal contractors.

Pursuant to Article 18 of the State Water Project contracts, agricultural contractors would be cut back first during a temporary water supply shortage due to drought and would have to experience two years of 50 percent cutbacks before cutbacks would be equally shared with urban contractors. San Francisco supplies would continue to be reduced by up to 25 percent for the next two years while dry conditions continued to plague watersheds in the state. The years between 1987 and 1993 would turn out to be the longest drought in modern California history, with runoff in the Sacramento Valley averaging 56 percent and runoff in the San Joaquin Valley averaging 47 percent.⁶³

While encouraging customers to conserve supplies, water agencies still had to meet operating expenses during the drought. Many agencies had no choice but to pass rate increases that were significantly higher than normally would have been required. For example, one nearby agency had to raise wholesale rates by almost 50 percent to cover their drought-related costs.⁶⁴ Water rates throughout the state varied greatly and largely depended on who was supplying the water and where the source originated.

By contrast, ACWD's rates in 1988-90 were raised by only 5 percent per year, since the District was able to apply funds collected in its Dry Year Contingency Reserve to any revenue shortfalls that resulted from customer conservation efforts.⁶⁵ Between 1987 and 1990 average residential water use had decreased by 11 percent, from 337 to 299 gallons per household per day. However, a portion of this reduction was offset by continued growth in the District's service area, with over 4,000 accounts being added to the ACWD distribution system over this same timeframe, an increase of 7 percent.⁶⁶ Further, since State Water Project supplies were not cut back during the early years of the drought, the impact of the drought on ACWD water supplies was minimized, as was the resulting effects on District finances due to voluntary conservation efforts.

A change on the ACWD Board would come in the midst of the drought, when in November 1990 environmental chemist, "outspoken drinking water quality critic," and political newcomer Tim Rollisson defeated 24-year veteran Harry Brumbaugh for a seat on the Board. This election also saw both Carl Strandberg and Clark Redeker reelected to their seats.⁶⁷

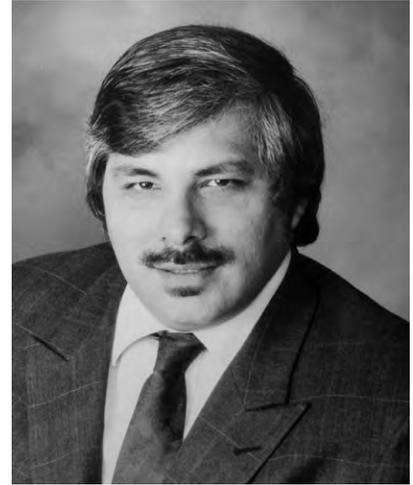
Brumbaugh's tenure on the Board was marked by his ongoing commitments to improving water quality and to ensuring that joint efforts between ACWD, the Tri-Cities, and the East Bay Regional Park District to develop compatible water supply and recreational projects – such as at the Quarry Lakes Regional Recreation Area, the Grau-Snell Pond fishing facility, and the Alameda Creek Trail – became a reality.

By the winter of 1990-91, drought conditions dramatically changed for the worse. At the end of December 1990, statewide reservoir storage was at 54 percent of average, and the state Department of Water Resources was estimating that there was less than a 10 percent chance of having average or better runoff for the remainder of the winter. If dry conditions persisted for the next 60 days, it was estimated that both the District's state and San Francisco supplies could be cutback by as much as 50 percent.⁶⁸

To address this potential, ACWD staff began to develop scenarios for how much short-term groundwater pumping could make up the anticipated “worst case” supply shortfall, and what level of increased customer conservation would be needed to make up the remainder of the projected shortage. A series of public meetings was convened by the Board starting in February 1991 to both review the water supply situation and to receive public input on potential demand-reduction programs that would be more stringent than existing efforts, and which could include pricing disincentives to discourage discretionary use above a baseline level, as well as measures to limit wastage and unreasonable use.

At a meeting in February 1991, staff presented the Board with a supply shortfall scenario that estimated that a 35 percent level of conservation would be required, given the Department of Water Resources' most recent projection of being able to supply contractors with only 10 percent of their water supply requests for the year, and assuming that nearly 8,000 acre-feet of additional groundwater pumping took place to help meet demand.⁶⁹

In response to the growing statewide water crisis, newly-elected Governor Pete Wilson signed an executive order in February 1991 creating a Drought Action Team. Among its suggestions, the team recommended establishing an Emergency Drought Water Bank, whereby the state could purchase water for \$125 per acre-foot and resell it for \$175 per acre-foot to those with critical urban and agricultural needs. Within 100 days, the water bank had entered into over 350 contracts for the sale of over 860,000 acre-feet of water. Approximately 170,000 acre-feet of this water would be used for environmental protection of the Delta and for other environmental activities, and the remainder would be purchased and delivered to individual State Water Project contractors, as well as non-contractor agencies. The



Tim Rollisson
ACWD Director 1990 - 2000
Tim Rollisson was a lifelong resident of Fremont. He graduated from California State University, Hayward with a degree in chemistry. At the time of his election, Rollisson worked for an analytical laboratory.

banked water came primarily from farmers who chose to either sell all or some of their contractual water supplies for that year either because they could use groundwater as an alternative source or leave their fields fallow.⁷⁰

*“A wet March doesn’t
compensate for a dry
October, November,
December, January and
February.”*

– GOV. PETE WILSON

In early spring of 1991, the state Department of Water Resources projected that ACWD would receive only 20 percent of its imported State Water Project supply and San Francisco authorities projected delivery of 50 percent of requested supplies of Hetch Hetchy water. The following month, good news finally arrived from an unexpected source – from Mother Nature herself. March 1991 came in “like a lion” and brought a record rainfall that quickly dubbed this the “Miracle March Rains,” greatly improving both the local and statewide water picture. DWR was subsequently able to deliver 30 percent instead of 20 percent of the District’s allotment, and San Francisco cut its deliveries by only 25 percent rather than 50 percent.

Although Miracle March provided a temporary respite, the drought wore on throughout the state, with three-fourths of California’s population still subject to mandatory rationing. In an April 5 statement, Governor Wilson reminded Californians: “A wet March doesn’t compensate for a dry October, November, December, January and February. ... And it will be apparent well before we feel the arid heat of August that California is still far short of water. The drought is not over.”⁷¹

Now armed with a more accurate estimate of expected imported water supplies, the District was able to fashion a more stringent water conservation program that met the Drought Water Bank’s requirement that purchasers of these supplies implement drought management programs aimed at achieving a 25 percent reduction below normally projected 1991 water demands. To reach this level of demand reduction would require that the District purchase 14,800 acre-feet of Emergency Water Bank water from the state.⁷² The ACWD Board held a public hearing March 25, 1991, for the purpose of declaring a Water Supply Emergency, which was required in advance of any adoption of a more stringent water conservation program.

More than 200 members of the public attended the hearing to provide comment on District staff’s proposed program, which included provisions for charging higher rates for usage above a baseline level of consumption as well as restrictions on uses determined to be either unreasonable or wasteful. At the hearing, residential customers expressed concern over the fairness of the proposed baseline allowance for single family residences (250 gallons per day during the low-demand late fall/winter months and 350 gallons per day during the spring/summer irrigation season), and the need for potential exemptions for larger families (in excess of the 3-person average) and for larger-sized landscape areas, which required more water to irrigate, even if irrigated efficiently. City and business representatives also

wanted to ensure that the economic impact on businesses reliant on water for production would not be adversely affected by the proposed program.⁷³

The Board's Ordinance 30 implemented the terms of the District's response to the declared Water Supply Emergency. The final program that went into effect on May 1 incorporated responses to many of the concerns previously expressed by the public to ensure the fairness of the program while balancing this with the need to achieve the level of required conservation. The baseline consumption levels were unchanged from the previously proposed 250/350 gallons per day per single family household. Usage above the baseline level would be charged a progressively higher rate, reaching four times the normal unit rate charged for water at the highest of the four-tier rate structure. However, customers could receive higher consumption baselines if, upon receipt of a written request, they were able to justify the higher level of consumption based on medical needs, family size, or to irrigate large landscapes. An irrigation consultant would be utilized to determine appropriate irrigation usage for these customers, based on a lower than normal (evapotranspiration) rate to ensure maximum efficiency.

Under the adopted conservation plan, multi-family units and commercial/industrial accounts would receive a base consumption allowance of 85 percent of 1990 usage (which was already about 5 percent below 1987 average use). Exemptions could also be applied for, should one of these customers be able to prove a need for a higher allocation, based on production needs or some other compelling requirement. ACWD staff would, in such cases, conduct on-site inspections to confirm the need and ensure that water was being used as efficiently as possible.

Recently retired Operations Manager (and future Board member) Phil Utic was retained to make these site visits. According to Utic, "I went out in the field and checked with nurseries, car washes and water intensive industries and suggested to them different ways they might be able to reduce water usage."⁷⁴ Landscape-only customers would be reduced to a base allocation equivalent to 50 percent of 1990 usage subject to verification of efficient irrigation practices should a customer request an allocation change above this amount. In addition, residential or non-residential customers who used below their base allowance during any billing cycle would be able to "bank" this unused water and be charged at the base rate for any subsequent



When building the Grimmer Avenue headquarters, ACWD created a xeriscape garden to demonstrate that low-water landscaping can be beautiful and water efficient. General Manager Roy Coverdale and Director Frank Borghi (above) visited the garden and examined a "flannel plant," whose scientific name is *Fremontodendron californicum*.

The drought served as a major wake-up call for water planners in the state, causing them to reevaluate supply and delivery systems and to implement improvements and innovations.

month in which they might exceed their base allocation through applying the banked water amount.⁷⁵ In July 1991, after the District's drought management program had been in operation for two months, ACWD customers were using nearly 30 percent below their 1987 usage.⁷⁶

ACWD customers would consistently meet the District's 25 percent reduction goal for the balance of 1991. To help pay for the cost of the 14,800 acre-feet of water purchased from the Emergency Water Bank and meet ongoing operating costs in the face of significant demand reductions, \$1.6 million of the previously established Dry Year Contingency Reserve was applied to the Fiscal Year 1991/92 budget, as were excess use charges collected from customers who used water in amounts over their baseline allocations. ACWD customers faced no additional rate increase in the Fiscal Year 1990/91 that was due to the drought, and a 5 percent commodity rate increase was approved effective January 1, 1991, to meet projected normal operating costs and capital program needs.⁷⁷

By March 1992, a near-normal amount of rain and snowfall had fallen throughout the state. By April, water supply conditions statewide and locally had improved to the point where the District opted not to participate in a second year purchase from the Emergency Water Bank, and the Board could reduce the District-wide conservation goal from 25 percent to 15 percent. The Board amended Ordinance 30 to increase the "Base Consumption Allowance" for all customers due to the improved conditions, as well as the excellent customer response during 1991.⁷⁸

Two industrial customers were singled out for special recognition. New United Motors Inc. (NUMMI), ACWD's largest single water user, and Borden Chemical received two out of the total of three achievement awards awarded by the state Local Government Commission for their efforts to permanently reduce the amount of water required in their production processes and to constantly strive for greater water use efficiency. By the end of 1992, NUMMI had achieved a 300,000 gallon-per-day permanent reduction in its water use, a savings of almost one-third of its total daily usage, and Borden Chemical had successfully reduced its consumption by 50 percent.⁷⁹

Despite the public's continued good conservation, and better runoff during the preceding winter, water supply conditions by the fall of 1992 remained precarious. As of October 1992 State Water Project reservoirs held less than 50 percent of capacity. The state projected reduced allocations at 50 percent of the amounts requested by contractors unless winter conditions improved significantly. While bracing for a possible seventh dry season, December arrived with a gift – the wettest winter month since 1986. The precipitation that fell that month was enough to wash away six years of drought. By the end of the winter, local supplies were flowing freely, ACWD's local

groundwater was well on its way to being replenished to pre-drought levels, and State Water Project deliveries rose to levels not seen since 1975. By February 1993, the water content of Sierra snowpack was 175 percent of normal and state reservoirs had risen to 80 percent of normal or more. On February 24, 1993, Governor Wilson declared the drought officially over. ACWD staff subsequently confirmed that sufficient local and imported supplies existed for 1993 to meet normal demands. The ACWD Board took action on February 25, 1993, to end the water supply emergency declared two years before, and to rescind Ordinance 30s provisions effective April 1.⁸⁰

While there were many negative economic and environmental effects from the prolonged drought, there were positive outcomes as well. The drought served as a major wake-up call for water planners in the state, causing them to reevaluate supply and delivery systems and to implement improvements and innovations. These included changes in both state and federal water project operations, water transfers, water banking, recycling and the ability

In 1991 ACWD joined 120 water agencies and public interest groups in a statewide effort to conserve water. The District offered ways for ratepayers to save water such as low-flow fixtures and leak-detection kits for toilets.



to purchase supplemental supplies. Californians also learned a valuable lesson concerning the vulnerability of their water supply and the need to conserve this important commodity. In fact, an April 2003 Bay Area Water Agency Coalition report showed that residents in the San Francisco Bay Area's five most populous counties showed that residents were using less water in the early 2000s than they did in 1986. Despite the fact that the region had grown by 17 percent between 1986 and 2000, water use in the East Bay, Santa Clara Valley, and San Francisco Peninsula had grown only by 3 percent.⁸¹

In October 1992 State Water Project reservoirs were half empty. Rain began to fall in December and wiped away six years of drought. By February 1993, the water content of the Sierra snowpack was 175 percent of normal.

These dramatic results ten years after the prolonged drought were, in part, a direct result of the fact that, by the end of 1991, water agencies and environmental groups had finally agreed on a statewide approach to water conservation. In 1989, an Urban Water Conservation Taskforce was formed to attempt to resolve issues surrounding the accuracy of future savings estimates from urban water that arose during Bay-Delta hearings conducted by the State Water Resources Control Board. Specifically, could the various



parties (including urban water suppliers, public interest groups and environmental organizations) agree on reliable conservation estimates for urban water suppliers? The outcome of these discussions was the development of a set of urban water conservation Best Management Practices (BMPs).

These BMPs provided proven conservation savings estimates, based on empirical studies and industry standards, which could be applied to future projections of conservation savings by urban water agencies. As long as the water agencies implemented the BMP programs outlined by the committee, these estimates of future savings would not be challenged. Local agencies retained flexibility by agreeing to implement only those BMPs that made sense from a cost-effectiveness standpoint, and could exempt themselves from implementing those programs that had been locally determined not to be cost-effective. A Memorandum of Understanding on Urban Water Conservation (MOU) was subsequently drafted that incorporated the consensus agreement on the BMPs that set forth an implementation schedule in which all locally determined cost-effective BMPs would be put in place by 2002. To oversee the implementation process, the California Urban Water Conservation Council was established, which would be governed jointly by water agencies, public interest groups, and environmental organizations, and which would report on water agency compliance with the terms of the MOU.

The MOU also committed all signatories to recommend to the State Water Resources Control Board that only reliable conservation estimates be included in the Bay-Delta regulatory process, and further recognized the need to provide reliable water supplies for urban as well as environmental needs.⁸² On December 11, 1991, a Memorandum of Understanding Regarding Urban Water Conservation was signed by representatives of more than 120 water agencies and public interest groups. ACWD was an original signatory to the MOU to conserve water, pledging to adopt all 16 BMPs for potential implementation between 1991 and 2002.⁸³ Programs that could be implemented, if determined by a local agency to be cost-effective, included ultra-low-flush toilet replacement programs, public information, low-flow showerhead distribution, enactment of water-efficient landscape ordinances, large landscape, industrial, and residential water audits, and other programs. Governor Pete Wilson also took action to make the sixteen BMPs a condition of permit approval from the State Water Resources Control Board in 1992.

As the ACWD Board and staff grappled with the effects of the prolonged drought, water conservation was just one of the tactics that would be employed to reduce the impact of future shortages. The District also began to explore ways to augment its imported supplies through the use of recycled wastewater and through desalination.

Studies on the potential for the use of recycled wastewater from a variety of potential sources, including the Union Sanitary District's wastewater treatment plant in Union City, had been conducted as far back as the 1970s. In 1979, the ACWD Board received a Bay Area-wide report on recycled water use by the East Bay Dischargers Authority, which operated the "super sewer" outfall in San Francisco Bay used by the Union Sanitary District and several other East Bay wastewater agencies. The study included several projects in the ACWD service area that could make use of recycled water for irrigation purposes, including the Coyote Hills, Perry's Farm, and Bailey's Ranch. All of these potential projects were located on the western edge of the Niles Cone Groundwater Basin, to the west of the I-880 Freeway.

The ACWD Board had previously adopted a position statement on recycled water in May 1976, which expressed concerns about the use of recycled water due to the threat it posed from contamination of the groundwater basin because of potentially harmful constituents in the recycled water that could percolate into the District's groundwater supply. It was determined that the projects proposed in the 1979 study did not pose a significant threat to the quality of Niles Cone groundwater, and that exceptions to the previous policy statement could be made for these projects. At that time, the Board adopted findings that the marketing of recycled water could be done on an "experimental basis" in the District's service area, that recycled water should be integrated into overall water supply considerations, and that ACWD should control the pricing and distribution of recycled water, should it become available.⁸⁴

No further action was taken on any recycled water projects in the District's service area subsequent to the 1979 study, since the high price for treating and distributing the recycled water was considered prohibitive. The prolonged 1987-93 drought caused water agencies throughout the state to take another look at ways in which recycled water could be used to stretch scarce water supplies during a drought, especially for landscape irrigation, industrial process, and other non-potable uses. In June 1990, the Boards of both ACWD and Union Sanitary District authorized a joint wastewater reuse project survey to proceed. The purpose of the survey was to assess the potential market for recycled water in the joint ACWD/USD service areas, and to determine whether or not the potential demand was sufficient to warrant further study. Consistent with its earlier policy statements on the issue, the ACWD Board accepted a staff recommendation to limit the study area to locations where the local groundwater supply would be protected.

Three priority zones were established with respect to ACWD groundwater pumping and recharge facilities and activities. Due to the short residence time of groundwater in the basin, water reuse projects in those zones were



considered potentially detrimental to groundwater quality. Only potential reuse projects outside these zones, basically within and to the west of the I-880 corridor, were considered.⁸⁵ The study found that more than 3,000 acre-feet of potential demand for recycled water might be developed, with 83 percent of the demand consisting of landscape irrigation. However, the estimated cost of the recycled water amounted to nearly two and one-half times the current cost of potable water, since a recycled water system would require expansion of Union Sanitary District's treatment plant to include a higher (tertiary) level of treatment as well as a separate distribution system to deliver the recycled water.⁸⁶

Despite the potentially daunting cost considerations, both the ACWD and USD boards considered that the potential benefits of recycled water, and the potential for grants and subsidies to reduce the cost disparity, warranted continued study. In June 1991, a second phase study was authorized, which would refine the demand potential through a market survey, further develop treatment options and costs, as well as propose implementation strategies for identified feasible projects. To further express their commitment to jointly work together to develop and implement recycled water

The drought served as a major wake-up call for water planners. Californians also learned a valuable lesson concerning the vulnerability of their water supply and the need to conserve. Residents were using less water in the early 2000s than they did in 1986. The region had grown by 17 percent but water use in the East Bay, Santa Clara Valley, and San Francisco Peninsula had grown by only 3 percent.

projects, ACWD and USD entered into a “Water Reclamation Memorandum of Understanding” in April 1991, agreeing on general roles and responsibilities for implementing recycled water projects in the service area and agreeing to work cooperatively to further assess these projects.⁸⁷



Phil Utic

ACWD Director 1992 – 1998

Phil Utic had served as General Manager of the Green Bay, Wisconsin Water Department before coming to California to work for the East Bay Municipal Utility District. Utic had spent five years as ACWD's Operations Manager before retiring in 1991. Upon retirement, he had also briefly served as a consultant for the District, assisting with industrial and commercial customer water audits during the drought.

Recycled water was not the only potential local supply source investigated by the District during this time. The District's location next to San Francisco Bay and the plentiful supply of brackish groundwater available in the aquifers close to the Bay made desalination a potential supply option as well, requiring a reconnaissance-level study of potentially available desalination alternatives that might be pursued. In January 1992, the Board authorized a desalination feasibility study to be conducted by a consultant that would examine a wide variety of potential sources for desalinated water as well as potential treatment options.⁸⁸ By August 1992, the study was ready to be presented to the Board. The alternatives studied included treating municipal wastewater, sea water, and brackish groundwater. Membrane technology using a reverse osmosis process was selected as the most feasible technology. The three potential sources studied needed to be treated to meet all potable water standards so that the selected alternative could be delivered to ACWD customers.

The final alternative combination of technology and supply source would be the most cost-effective one that could meet this water quality goal. The brackish groundwater source, treated with reverse osmosis membranes, emerged as the most cost-effective alternative. The water would come from wells operated under the District's Aquifer Reclamation Program, which had, since the mid-1970s, been pumping out the brackish water mixture of seawater and fresh water, literally billions of gallons of which had infiltrated into the Niles Cone Groundwater Basin during the fifty years (up to the mid-1960s) when the basin was over-pumped and over-drafted to meet growing demands.⁸⁹

By the tail end of the drought in 1992, the Board was faced with the need to assess how to prioritize and further consider alternative supply sources like recycled and desalinated water, as well as determine the effects on future customer demands of conservation and the adopted Best Management Practices. It quickly became apparent that there was a need to update the 1986 Supply and Facilities Planning Study to include these new factors, as well as the other statewide and regional changes that had occurred since 1986 that could dramatically impact the District's imported supplies from the state and from San Francisco.

In April 1992 the Board authorized staff to proceed with the development of long-range planning effort that would guide their decision-making on supply sources, capital facilities, and program priorities for the next thirty

years. Although still in its infancy as a concept, the Board was clear that the process must be comprehensive in its scope, and involve the public, staff, and elected officials of service area cities and special districts in this process in ways that previous planning efforts had not.⁹⁰ The development and outcome of this planning process will be told in the next chapter of the District's history.

Frank Borghi, the most senior member of the ACWD Board, announced his retirement in 1992 after nearly thirty-one years on the board. Borghi's decision to not run for reelection brought out a field of nine candidates, including incumbent Joe Damas who successfully ran for reelection. To replace Borghi, voters elected Phil Utic, a water utility engineer.

Board Vice-President Joe Damas stated that Borghi's departure "marks the end of an era." Borghi's roots were deep in the Washington Township agricultural community, as was his knowledge of the District's history and his insights. He had an abiding interest in ensuring the development of joint water and recreational facilities at the Quarry Lakes Regional Recreation Area, and determination to improve the quality of the District's local groundwater supplies. His interest in seeing new treatment technologies support the District's water quality improvement efforts as well as the development of new sources of supply made him a strong supporter of a future desalination plant and the use of ozonation at the District's new water treatment plant.⁹¹

Summary: Another Drought Brings New Approaches and Technologies for the Future: 1978 - 1993

By the end of 1992, the District had successfully weathered one of the longest drought periods in modern California history, imposed more stringent conservation measures only in the final stages of the drought, and minimized the effect of decreased demands on water rates through the use of the recently established Dry Year Contingency Reserve. By continuing its tradition of maintaining local control over the Niles Cone Groundwater Basin, the District was able to prioritize contamination case actions to ensure that the District's production wellfields would be protected to the maximum extent possible. The acquisition of the last active quarry in the Niles area would allow for the much needed rehabilitation of the "Below Hayward Fault" percolation ponds to both increase percolation rates and set the stage for future recreational facilities that would be developed by the East Bay Regional Park District.

The District also completed several major capital projects during these years: a third rubber dam on Alameda Creek, a hydraulic blending facility at its production wellfields, and a state-of-the-art surface water treatment plant in the Mission San Jose area. Studies on water recycling and desalina-

tion to supplement the District's existing water supplies paved the way for the development of a comprehensive planning effort that would guide the District's policy-makers and staff for the next thirty years.

Developments that would cause water planners to rethink the reliability of both the District's state and San Francisco supplies would soon serve to highlight the need for a robust plan that could adapt to changing conditions while meeting basic policy objectives for the future quality and reliability of the District's water supplies. New challenges and opportunities would soon confront the District on a variety of fronts as it endeavored to meet the future demands of a growing community in an era of increasing uncertainty about the reliability of its imported supply sources.

Chapter 6 Endnotes

- ¹ ACWD FY 1978-79 Adopted Budget, pages 1, 3, and 4.
- ² Minutes, ACWD Board of Directors, 1-12-78 to 6-28-78, August 10, 1978, p. 122 and 8/24/78, p. 125.
- ³ "He knows every mud hole in the area," *Fremont Argus*, November 28, 1979.
- ⁴ "Two Spots Up for Grabs in ACWD," *Fremont Argus*, November 1, 1979.
- ⁵ Hundley, p. 309.
- ⁶ Department of Water Resources, "The Peripheral Canal," publication/brochure, (Sacramento, CA, May, 1970).
- ⁷ Department of Water Resources, "The Peripheral Canal of the Sacramento-San Joaquin Delta," (Sacramento, CA, 1966), pp. 8-9.
- ⁸ Minutes, ACWD Board of Directors, 12/10/69 to 11/30/70, February 11, 1970, p. 3.
- ⁹ "Peripheral Canal Gets Regan's OK," *Oakland Tribune*, April 29, 1970.
- ¹⁰ "Conservationists Aim at Peripheral Canal," *San Jose Mercury News*, September 16, 1970.
- ¹¹ Hundley, p. 318.
- ¹² *Ibid.*, p. 320.
- ¹³ Memo from Stan Saylor to ACWD Board, "General Analysis of SB 200 and Proposition 8," February 18, 1980, pp. 1-4.
- ¹⁴ November-December 1979 ACWD "Watergram," Customer Newsletter, (volume 8, no. 7).
- ¹⁵ ACWD Resolution No. 80-113, adopted October 9, 1980.
- ¹⁶ "Put an End to Canal Project," *Fremont Argus*, August 31, 1980.
- ¹⁷ "Peripheral Canal is Needed," Guest Editorial, *Fremont Argus*, September 7, 1980.
- ¹⁸ Hundley, p. 321.
- ¹⁹ Hundley, pp. 325-327; "Canal Foes Ready for Next Skirmish," *Hayward Daily Review*, July 7, 1981.
- ²⁰ Letter from ACWD Board President Clark Redeker to Congressman Paul N. McCloskey, July 7, 1981; Minutes, ACWD Board of Directors, 7/12/79 to 6/25/81, January 24, 1980, p. 78 and September 11, 1980, p. 186.
- ²¹ Fremont Chamber of Commerce, "The Peripheral Canal" newsletter, April 2, 1982.
- ²² Hundley, pp. 328-329.
- ²³ "Changing of Guard at Water District," *Fremont Argus*, May 2, 1982.
- ²⁴ *Ibid.*
- ²⁵ Camp Dresser & McKee, "Water Supply/Demand Study for Alameda County Water District," October, 1981, pp. 16-17.
- ²⁶ *Ibid.*, p. 21.
- ²⁷ Madrone Associates, "ACWD Groundwater Recharge Facilities Plan Draft EIR," (Novato, CA, August 5, 1981), pp. 3-16.
- ²⁸ Bookman-Edmonston/Metcalf and Eddy, "ACWD Supply and Facilities Planning Study Summary Report," (Palo Alto, CA, March, 1986), pp. 7-14 to 7-15.
- ²⁹ Minutes, ACWD Board of Directors, 7/12/84 to 12/19/86, July 26, 1984, p. 13; and Calendar Year 1986, April 14, 1986, p. 75.
- ³⁰ Minutes, ACWD Board of Directors, 1/13/83 to 6/29/84, May 10, 1984, p. 254; June 7, 1984, p. 275.
- ³¹ Kennedy/Jenks Engineers, "Trihalomethane Control Investigation, Alameda County Water District," (San Francisco, CA), May 1982.
- ³² Minutes, ACWD Board of Directors, 1/13/83 to 6/29/84, May 31, 1984, p. 269.
- ³³ Minutes, ACWD Board of Directors, 7/7/81 to 12/21/82, April 14, 1982, p. 127.
- ³⁴ Minutes, ACWD Board of Directors, 7/22/65 to 12/15/66, December 15, 1966, p. 285.
- ³⁵ Interview with Roy Coverdale, February 8, 2011.
- ³⁶ Bookman-Edmonston/Metcalf and Eddy, "ACWD Supply and Facilities Planning Study Summary Report," (Palo Alto, CA), March, 1986.
- ³⁷ "Water district boss gets flood of praise," *The Argus*, February 24, 1987.
- ³⁸ "Beard named chief of water district," *The Argus*, March 1987.
- ³⁹ Personal communication with James Beard, July 22, 2014.
- ⁴⁰ ACWD, "Blending Study," (August, 1989), p. 2-17.
- ⁴¹ *Ibid.*, p. 2-13.
- ⁴² *Ibid.*, p. 4-1.
- ⁴³ Minutes, ACWD Board of Directors, July 12, 1979 to June 25, 1981, 10/30/80, p. 227.
- ⁴⁴ Minutes, ACWD Board of Directors, January 13, 1983 to June 29, 1984, 9/12/83, p. 130.
- ⁴⁵ Minutes, ACWD Board of Directors, CY 1988, 5/16/88, p. 77 and 8/11/88, p. 130.
- ⁴⁶ "Water District Weighs Uncommon Technique," *Fremont Argus*, September 16, 1988.
- ⁴⁷ "Water Plant in the Offing," *Fremont Argus*, January 28, 1990.
- ⁴⁸ Presentation to the Community on New Water Treatment Plant Design Alternatives, ACWD Staff and Consultants, April 11, 1989.
- ⁴⁹ Letter from J. Beard, Progress Report to Address Community Concerns, April 11, 1989, ACWD Files, WTP2.
- ⁵⁰ "Residents willing to live with treatment plant site," *Fremont Argus*, April 11, 1989.
- ⁵¹ "\$900,000 for water treatment machine – Fremont facility pays beauty's price," *San Jose Mercury News*, December 22, 1991.
- ⁵² U.S. EPA Web Site, <http://epa.gov/superfund/action/20years>.
- ⁵³ Minutes, ACWD Board of Directors, January 12, 1978 to June 28, 1978, 2/9/78, p. 14.

- ⁵⁴ "Luck spares water supplies," *Fremont Argus*, October 2, 1984.
- ⁵⁵ Ibid.
- ⁵⁶ "75 Cases of Ground Contamination," *Fremont Argus*, January 21, 1987.
- ⁵⁷ Minutes, ACWD Board of Directors, Calendar Year 1988, May 16, 1988, p. 78.
- ⁵⁸ Minutes, ACWD Board of Directors, Calendar Year 1989, February 9, 1989, p. 29.
- ⁵⁹ ACWD "Watergram" Customer Newsletter, Volume 9, No. 3, June 1989.
- ⁶⁰ CH2MHill, "Alameda Creek Watershed Environmental Survey," March 1990; Calendar Year 1990 Minutes, ACWD Board of Directors, January 6, 1990, p. 22.
- ⁶¹ Minutes, ACWD Board of Directors, Calendar Year 1988, March 24, 1988, p. 49 and April 14, 1988, p. 63.
- ⁶² "Congratulations to the People of Fremont, Newark and Union City," *Fremont Argus*, June 8, 1988.
- ⁶³ Center for Biological Diversity, State Water Project Chronology, at: www.biologicaldiversity.org/campaigns/monterey_plus_amendments.
- ⁶⁴ *Water in the Santa Clara Valley: A History* (Cupertino, CA: California History Center Foundation, 2005), p. 139.
- ⁶⁵ Minutes, ACWD Board of Directors, Calendar Year 1988, December 12, 1988, p. 21; and Calendar Year 1989, June 22, 1989, p. 130.
- ⁶⁶ ACWD internal communication, "Water Supply Fact Sheet," January 24, 1991.
- ⁶⁷ "Rollisson wins race for water board seat," *Fremont Argus*, November 8, 1990.
- ⁶⁸ Ibid.
- ⁶⁹ ACWD internal memorandum from J.D. Beard, "Drought Contingency Planning Update," February 27, 1991.
- ⁷⁰ California Department of Water Resources, "Dealing with the Drought: Changes Since 1987-92," July, 2000.
- ⁷¹ "The State of California's Drought," press release, Office of the Governor, April 5, 1991.
- ⁷² Memo from J.D. Beard to ACWD Board, "Emergency State Water Bank Contract Agreement," April 8, 1991.
- ⁷³ *Fremont Argus*: "District Plans Water Rationing, Penalties, Rate Hikes," March 15, 1991; "Drought Emergency Declared," March 26, 1991; "Bill for Drought Coming Due," April 1, 1991; "Bargain Water At the Bank," April 4, 1991; and "Water Cuts May Hurt Economy," February 24, 1991.
- ⁷⁴ Interview with Phil Utic, October 5, 2010.
- ⁷⁵ ACWD Ordinance 30, adopted April 25, 1991; personal recollection of drought response coordinator Paul Piraino, January 3, 2013.
- ⁷⁶ "New, Stiff Rates Are Designed to Punish Water Wasters," *Fremont Argus*, July 9, 1991.
- ⁷⁷ ACWD FY 90/91 Budget, p. 3; Minutes, ACWD Board of Directors, Calendar Year 1989, June 22, 1989, p. 130.
- ⁷⁸ Minutes, ACWD Board of Directors, Calendar Year 1992, April 9, 1992, p. 72 and April 23, 1992, p. 77.
- ⁷⁹ Minutes, ACWD Board of Directors, Calendar Year 1992, December 10, 1992 p. 215.
- ⁸⁰ Minutes, ACWD Board of Directors, Calendar Year 1993, February 25, 1993, pp. 36-37.
- ⁸¹ Bay Area Water Agency Coalition, "Advancements in Water Conservation," (Oakland, CA, April 2003).
- ⁸² ACWD, *Water Supply Planning Study Workshop*, presentation materials, July 21, 1992.
- ⁸³ Minutes, ACWD Board of Directors, Calendar Year 1991, September 12, 1991, p. 173.
- ⁸⁴ Minutes, ACWD Board of Directors, 7-12-79 to 6-25-81, November 26, 1979, p. 52.
- ⁸⁵ Engineering-Science, Inc., "Potential Reuse Projects for the ACWD Water Reuse Survey, Prepared for Union Sanitary District and Alameda County Water District," (September 1991), p. 2-2.
- ⁸⁶ Ibid., pp. 7-1 to 7-4.
- ⁸⁷ Minutes, ACWD Board of Directors, Calendar Year 1992, April 9, 1992, p. 69.
- ⁸⁸ Minutes, ACWD Board of Directors, Calendar Year 1992, January 23, 1992, p. 22.
- ⁸⁹ "Desalination Feasibility Study," presentation at Special Board Meeting, August 19, 1992.
- ⁹⁰ Minutes, ACWD Board of Directors, Calendar Year 1992, April 14, 1992, p. 76.
- ⁹¹ "Water board member moves on," *Fremont Argus*, December 18, 1992 and "Water director Borghi retires," *San Jose Mercury News*, December 26, 1992.



Chapter 7 • 1992 to 1996: Seeking Greater Certainty

On May 11, 1989, the ACWD Board of Directors commemorated seventy-five years of service to the community. In addition to the various celebrations and expressions of appreciation and congratulations from state and local officials, the Board took the occasion of the District’s “diamond jubilee” to put in place several important actions that would guide and direct ACWD policy makers and staff for years to come.

The first action was to formalize a “mission statement” for the District. Although always implicit, the new mission statement emphasized key policy priorities of critical importance to the Board: “To provide the residents of Fremont, Newark and Union City with a reliable supply of high quality water at a reasonable cost.” Complementing the adoption of the mission statement, the Board also approved policy statements dealing with two priority programs that were foundational to the District’s ability to carry out its mission: a Groundwater Management Policy and a Water Quality Policy.

The Groundwater Management Policy stressed the importance of the Niles Cone Groundwater Basin to meeting the present and future water needs of the service area, and laid out several objectives and programs designed to protect, preserve, and improve the integrity of the District’s groundwater resources. The Water Quality Policy laid out a similar vision to clearly state the District’s position regarding its overall water quality objectives and to describe the programs that would ensure that those objectives would be met. The policy states that it is the District’s intent both to “protect its water resources and to deliver a reliable supply of high-quality drinking water which is treated to meet not only regulatory requirements for protection of public health, but also to meet aesthetic objectives to ensure consumer acceptance.”¹

The mission statement and policy directives on groundwater management and water quality would become critically important, as the District Board and staff sought to implement them in the context of an increasingly challenging future for water supply development, at the local, regional, and statewide levels.

As the 1990s progressed, the District would find itself increasingly drawn into policy debates over how to achieve its goals while seeking balance among a variety of competing forces. These included conflicts between water suppliers, regulators, and environmental proponents over how to:

- best meet the needs of a growing population while maintaining the health of the ecosystem in the Sacramento-San Joaquin Delta,

“I’m proudest of good water management . . . and that we were able to supply a sufficient amount of good, pure, safe water at an affordable cost.”

– CLARK REDEKER,
DECEMBER 1995

“To provide the residents of Fremont, Newark and Union City with a reliable supply of high quality water at a reasonable cost.”

– ACWD’S MISSION STATEMENT, 1989

- protect and improve the quality and reliability of the District’s local supplies in the face of continued growth both within the District’s service area and in the Alameda Creek Watershed,
- best address and reconcile the growing awareness of the need to protect and enhance the Alameda Creek Watershed ecosystem and fishery development with the District’s historic groundwater replenishment activities, and
- work more effectively with San Francisco and the city’s suburban wholesale customers to ensure the reliability and sustainability of the San Francisco Regional Water System in the face of both environmental challenges and the need to repair and replace rapidly aging infrastructure.

In addition to these challenges, the District, after seventy-five years of operation, would begin to confront its own need to finance its infrastructure improvements, as pipelines and other facilities began to show the effects of age. The District also began to adapt to new challenges relating to the ability of the District’s system to withstand a seismic event and other potential threats. The District would also have to address questions over whether or not its continued existence as an independent special-purpose agency was the most effective and efficient way to organize water service for the Tri-City area.

The 1990s and early 2000s would become, in many ways, some of the District’s most challenging years so far. Between 1992 and 1996, which this chapter covers, the District would adopt a new and more sophisticated long-range planning process, statewide efforts would begin anew to break the stalemate between environmentalists and water suppliers over the future of the San Francisco-San Joaquin Delta, the lessons learned from recent Bay Area disasters would be applied to counter a threat to ACWD’s own water system, and concerns about the financing and funding of governmental operations at the state level would place the District in the cross-hairs of a legislative effort to challenge the effectiveness and efficiency of independent special districts like ACWD.

Soon after the District’s new Water Treatment Plant No. 2 went into operation in 1993, the food editor of the Alameda News Group decided to conduct a taste test from five local water districts encompassing all of Alameda County and one neighboring agency just over the border in San Joaquin County. The judges were “all experienced taste-testers with the ability to detect nuances of flavor and aroma.” Samples were obtained directly from one of each agency’s water treatment plants and from a faucet in a home in each agency’s service area.



With Mt. Diablo as a backdrop, water flows through the Sacramento-San Joaquin Delta.

According to the article: “To some people’s amazement, water from the smallest district, Alameda [County] Water District, garnered the highest score for drinkability,” with ACWD tap water scoring a perfect score from one taster, and the highest score overall. Tasters said, “. . . it was clean and refreshing . . . The best we tasted.”²

The samples tasted were both from Water Treatment Plant No. 2, and the positive reactions were certainly supportive of the decision to employ ozone disinfection, which has less taste and odor than other methods of disinfection, to treat the District’s State Water Project supply at the plant. Yet even as the District’s State Water Project supply from the Delta garnered praise for its high quality and excellent taste, a storm was gathering over the competing uses and very future of this supply.

Addressing California’s Drinking Water and Issues in the Delta

By the early 1990s, almost two-thirds of all of the drinking water in California was pumped through the Sacramento-San Joaquin Delta, including the water delivered to Alameda County Water District through the South Bay Aqueduct. In addition, nearly 5 million acres of farmland was irrigated by waters that were directly or indirectly diverted from the Bay-Delta region.³ The Delta had become vital to every sector of California’s economy, and was also of critical importance to the wildlife and fisheries that lived in the Delta environment.

The heart of the problem was how to find an acceptable balance between these competing uses, since the more water that was pumped from the Delta to meet consumer demands throughout the state, the less fresh water was left to flush through the outlet from the Delta to San Francisco Bay. This would allow more seawater to intrude further into the Delta region and also allow pollutants from surrounding agricultural lands to concentrate.

As a result of these conditions, a chain reaction of events was set in motion that affected both consumers and the environment. Several plant and wildlife species in the Delta estuary were declared endangered, and regulations were set in place to protect them. Pumping operations in the Delta would be periodically shut down, causing serious water quality and supply reliability problems for agencies receiving Delta water throughout the state. Along with nearly 22 million other Californians, the residents of the ACWD service area had a critical stake in how these Delta resource issues would be resolved.

After the defeat of the Peripheral Canal in 1982, state authorities and other stakeholders labored to develop a consensus on improving water quality standards for Delta exports, and to find ways to protect fisheries and wildlife in the Delta. By 1993, with no acceptable water quality control

plan yet in place, the door was opened for federal regulators to assert their jurisdiction and to start taking action to direct Delta operations. As a result of a court order, the U.S. EPA in December 1993 issued proposed “Water Quality Standards for Surface Waters of the Sacramento River, San Joaquin River and San Francisco Bay and Delta of the State of California.” These standards were to be enacted by early 1995. If implemented as proposed, they would severely limit Delta water exports for the benefit of threatened and endangered species in the Delta, including the Sacramento splittail and the winter-run Chinook salmon. The standards also would put specific salinity standards in place.

The net effect of these actions would be to reduce the amount of Delta water annually available to state and federal contractors up to 3 million acre-feet, with no replacement supply proposed.

This was unacceptable to water agencies, which believed the proposed plan to be reactive and focused only on efforts to reduce water exports.

Working Toward a Better Plan for the Delta – the Bay-Delta Accord

Water agencies throughout the state began to advocate for a comprehensive plan that would account for both water supply reliability as well as better protect the Bay-Delta ecosystem. Few stakeholders wanted the EPA controlling Delta exports. The ACWD Board opposed the initial EPA proposal, and directed General Manager Jim Beard to work with other urban water agencies in the state to develop alternative plans. In 1990, ACWD had become a founding member of the California Urban Water Agencies organization, which was made up of twelve of the largest urban water agencies in the state, including both northern and southern California water suppliers. These twelve agencies supplied water to two-thirds of the state’s population.

The California Urban Water Agencies organization was the brainchild of the general managers of East Bay Municipal Utility District (Jerry Gilbert) and the Metropolitan Water District of Southern California (Carl Boronkay), who perceived that, in the wake of the 1982 Peripheral Canal defeat, urban water agencies in both northern and southern California shared more common concerns than they had disagreements. This included a strong



The Delta Smelt is a small, slender fish endemic to the Sacramento-San Joaquin Delta. It is one of several endangered species in the estuary.

commitment to water quality and water supply reliability, and the need to support any decisions and policies regarding protection of the environment and water supplies with sound and well-documented science.

Working together, the twelve agencies developed a flexible salinity standard that worked on a sliding scale that took into account real-time conditions in the Delta. This differed from the EPA's proposed fixed standard, and attempted to reach the same water quality objectives while reducing the potential water supply impacts. Although not immediately accepted, the proposal would have far-reaching effects once a management plan to fix the Delta issues was finally issued in late 2000.



United States Secretary of the Interior Bruce Babbitt and Governor Pete Wilson proposed alternative water quality standards and a program for Delta restoration.

Meanwhile, ACWD and California Urban Water Agencies would be engaged in a dialog with environmental groups, state and federal regulators, and other water users throughout the 1990s. By mid-1994, a truce was finally declared in the contentious battle over the future of the Delta through a Framework Agreement that was signed by stakeholders and regulators.

Meanwhile, ACWD and California Urban Water Agencies would be engaged in a dialog with environmental groups, state and federal regulators, and other water users throughout the 1990s. By mid-1994, a truce was finally declared in the contentious battle over the future of the Delta through a Framework Agreement that was signed by stakeholders and regulators.

The Framework had three major goals:

1. development of a new Water Quality Control Plan that would be acceptable to both the U.S. EPA and to the State Water Resources Control Board;
2. coordination of State Water Project and Central Valley Project operations to allow for a rapid response to changing environmental conditions in the Delta; and
3. implementation of a long-term plan for the Delta estuary that would seek to balance water supply reliability with environmental protection.⁴

By December 1994 the parties signed a document that would become known as the Bay-Delta Accord. This plan more specifically laid out interim water quality control standards that would remain in effect for three years, enough time (so it was hoped) to develop the long-term plan identified in the Framework. To create that plan, state and federal agencies joined together to form the CALFED Bay-Delta Program.

The Accord also called for the early implementation of several ecosystem restoration projects – measures which would help to protect and restore the environment in the Delta – but which would not cost additional water supplies. These projects would be funded out of a combination of state and federal sources, as well as by voluntary contributions from urban water

agencies. The contributions would include a \$30 million guarantee (paid out at \$10 million per year over three years) from the Metropolitan Water District of Southern California, in addition to proportional contributions by other urban agencies, including ACWD.

Storing Water Outside the District’s Service Area Becomes Possible

By 1994, another issue that would have major implications for the District’s long-term water supply outlook took shape when a disagreement arose between some State Water Project contractors and the Department of Water Resources. During the dry years in the late 1980s and early 1990s, the Department and the contractors disagreed over water allocation procedures and other provisions of the long-term water supply contracts. In 1994, after a series of meetings, in which District Operations Manager Karl Stinson was an active participant, the Department and contractors executed the Monterey Agreement to modify the long-term water supply contracts. The modifications were incorporated into the water supply contracts in what became known as the Monterey Amendment. The amendment incorporated several changes that, according to Stinson, were critical to addressing ACWD’s long-term water supply needs.

Although the amendment included the method by which shortages and surpluses would be shared equally by agricultural and urban contractors, the most important changes for ACWD related to the ability to store State Water Project water outside of a contractor’s service area. This would have important implications for ACWD’s ability to plan for future water shortages, especially with the reliability of its State Water Project supply continuing to diminish as a result of environmental challenges and the inability of the state and other stakeholders to agree on a facilities plan to address the supply, quality, and environmental problems in the Sacramento-San Joaquin Delta region.

Integrated Resources Planning Becomes Essential

By the early 1990s, District staff and the Board realized that the continuation of previous water supply planning approaches (such as the 1986 Supply and Facilities Planning Study) would no longer meet the District’s needs. There was a perceived need for more comprehensive planning to account for the increasingly complex and inter-related issues surrounding the District’s imported and local water supplies. Planners saw the need to account for varying levels of risk and uncertainties of potential decisions (as well as their relative costs and benefits) and also to involve the Board and community stakeholders throughout the planning process.

During the late 1980s, other water agencies in the U.S. and throughout the world had confronted similar challenges, resulting in the development of an

integrated water resources planning concept. According to the American Water Works Association, “Integrated Resources Planning (IRP) includes planning methods to identify the most efficient means of achieving the [agency’s] goals while considering the costs of project impacts on other community objectives and environmental management goals.”⁵

By early 1992, ACWD staff began the process for developing an IRP analysis effort that would be tailored to the District’s specific needs and supply sources. By November 1993, the Board of Directors acted to approve a four-phase effort for what would become known as the “Integrated Resources Planning Study.” Phase 1 would include a consultant’s report on future customer demand projections. This effort would include an in-depth analysis of historical water use, apply varying rates of future development and land use scenarios, and incorporate variations in water use under different climatological conditions. The study would also adjust for changes in water use based on naturally occurring conservation as a result of changes in California law that mandated water conserving plumbing fixtures (such as low-flush toilets and low-flow showerheads), and then correlate these variables into a predictive statistical model to develop a range of water demand forecasts for each of the District’s customer categories.

Phases 2 through 4 of the study would then incorporate the results of the updated economic growth forecasts and demand projections into a computerized planning model that would be used to evaluate current and future water system reliability and the cost, reliability, and water quality consequences of potential resource development paths to meet these future demands. Finally, a sequence of resource actions and projects would be recommended that best met the District’s pre-determined policy objectives and that was most responsive to best and worst-case uncertainty scenarios as cost-effectively as possible.⁶

The process involved staff and Board in numerous discussions regarding policy objectives, uncertainties and risks facing the District’s future water supplies, as well as a wide range of potential resource actions to meet future demands from existing and future customers and that ensured that the District would always meet or exceed its water quality goals. The resource alternatives included both “supply-side” (such as purchasing supplemental supplies and constructing storage facilities) and “demand-side” alternatives (water conservation actions) that were equally weighted and considered in the evaluation process. The District also solicited input from the public throughout the course of the study through informational bill inserts, regular updates on progress through brochures and a customer hotline – where additional information could be requested – as well as public meetings on the plan with residential customers and industrial/commercial and governmental water users.

Policy Objectives of the 1995 Integrated Resource Plan

Costs

- Minimize resource costs
- Maintain low average customer bills
- Avoid rate shocks

Reliability

- Maintain a high level of service reliability

Water Quality

- Avoid sudden changes in water taste or appearance
- Maximize health-related quality

Environmental Impacts

- Avoid or mitigate environmental impacts
- Protect groundwater resources

Local control

- Maximize District control of resources
- Avoid chronic shortages

Risk

- Minimize risks due to future uncertainty

Key to the final evaluation of resource alternatives was the development of an acceptable level of reliability that customers were willing to support through future rate increases. These rate increases would go to fund the recommended facilities and programs that would be needed to achieve the desired level of reliability. For instance, the lowest level of reliability considered had a maximum shortage of 30 percent occurring once in thirty years; the highest level of reliability had no future shortages over the 35-year IRP planning horizon. To reach a higher level of reliability, more facilities and programs would be needed, which in turn would mean higher costs to customers.

Using the results of a “contingent valuation” survey of California Urban Water Agencies customers in both Northern and Southern California, including 308 randomly selected customers in the ACWD service area, the survey results confirmed there was a high level of concern about the lack of reliability in some of the state’s water supplies and a willingness to financially support efforts to improve reliability. On average, ACWD residents indicated a “willingness to pay” from \$12 to \$17 more per month per household on their water bills to avoid the kinds of water shortages that they or their regional neighbors had experienced in recent memory. No significant differences in attitudes were found between North and South state residents in this regard.⁷

Using the results of this survey and public input obtained from meetings and presentations on the IRP, the Board set an IRP program reliability goal of customers experiencing no more than a 10 percent water shortage due to drought once in thirty years. This goal was based on the assumption that future water demands would generally be within the “middle scenario” range for the next thirty-five years, and that the level of State Water Project supplies would average 85 percent of the District’s maximum contract amount of 42,000 acre-feet annually.⁸ Should either of these assumptions change, the District would need to update the IRP to reflect either more or fewer measures required to meet the stated reliability goal.



Even as the IRP process progressed, the District continued to upgrade its valuable infrastructure. In 1995, the District built a 2.75-million gallon storage tank at Avalon Heights.

The resource scenario ultimately selected was not the least costly – it would cost an estimated \$62 million over the thirty-five-year implementation period – but it was considered the most cost-effective solution that clearly met all of the Board-adopted evaluation criteria. These included: achieving the reliability goal of no more than a 10 percent reduction once every thirty years during drought years; maintaining a maximum monthly water hardness level of no more than 150 parts per million; and achieving an acceptable scoring in comparison to eight other scenario packages on such factors as

environmental impacts, assuring maximum local control over resources, and having a reasonable level of risk with respect to supply availability, financing, and water quality impacts.⁹ The following six projects, programs, and operational changes were recommended as part of the selected resource sequence:

1. Investigate off-site storage options.

The IRP estimated that the District would ultimately need 140,000 acre-feet of storage by 2030 to meet its reliability objective of having its customers experience no greater than a 10 percent shortage once in thirty years due to drought. As a result of the Monterey Amendment to the State Water Project, ACWD would be able to store water in excess of its annual demand in an area outside of the District’s service area boundaries. In addition to carryover storage in the State Water Project system itself, the most likely location for this storage opportunity appeared to be with agencies in the San Joaquin Valley who were State Water Project contractors, and who also had overdrafted groundwater basins in their

service areas. Under this plan, ACWD could send State Project water (to which it was entitled) via the California Aqueduct to a groundwater basin, such as the Kern Water Bank. During dry years, water customers of an agency in the San Joaquin Valley could use the banked groundwater while the District could receive an equivalent amount of State Project water (to which the San Joaquin Valley contractor was entitled) delivered via the South Bay Aqueduct.

2. Begin a more detailed study of brackish and saltwater desalination.

This recommendation originally provided for construction of a 3 million gallon per day (mgd) facility between 2000 and 2010, and another 3 mgd facility between 2010 and 2020. The 1992 reconnaissance study of desalination determined that the most cost-effective desalination plant would treat brackish groundwater (about 10 percent of the salt content of seawater) using reverse osmosis technology and recommended that it be built in area of the City of Newark close to one of the flood control channels that already had the appropriate permits to allow for the discharge of water pumped from one of the District's Aquifer Reclamation Program wells. These wells would serve as the source for the brackish (untreated) source water. The nearby flood control channel would potentially allow for the discharge of the concentrated brine, as long as environmental permitting agencies found the discharge of this byproduct to be safe for the environment. The discharge of brine in this manner would greatly reduce the unit cost of producing desalinated water and would avoid the need and expense of costly pipelines and infrastructure which could otherwise make desalination projects less economically feasible.

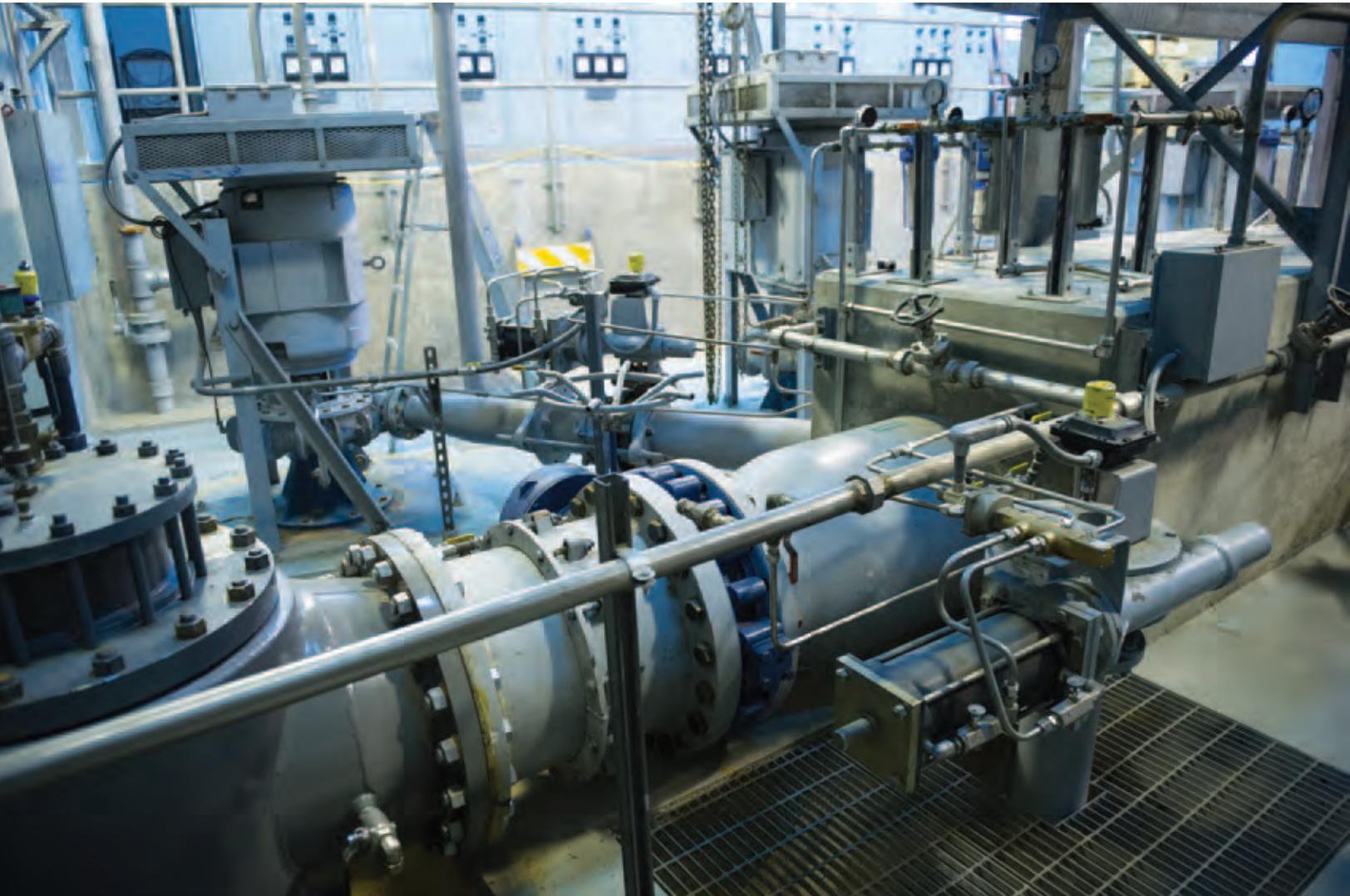
3. Implement a conservation package that placed primary focus on reducing spring and summer seasonal water demands through various outdoor conservation measures, such as landscape water audits, as well as implementing the Best Management Practices contained in the Urban Water Conservation Memorandum of Understanding (1991), as long as the programs were determined to be cost-effective for the District to pursue.

4. Continue to work with the Union Sanitary District on future water reclamation opportunities, especially should the “worst-case” supply/demand scenario occur requiring the District to meet greatly increased future demands as a result of growth with less available imported supplies. Because recycled water was a more expensive source of supply than other alternatives, cost-sharing arrangements and funding opportunities needed to be explored. In addition, because of the higher cost, recycled water would be considered for implementation in later years of the plan, after more cost-effective alternatives had been put in place.

5. Pursue operational changes in the groundwater basin. These included changing Aquifer Reclamation Program pumping criteria that were designed to counteract further migration of saline water toward the District's potable water wellfields and to ensure that groundwater losses to San Francisco Bay would be minimized when basin elevations rose above sea level. Perhaps most significantly, the study recommended that the District not pursue construction of the salinity barrier wells that had been endorsed in the 1986 Supply and Facilities Planning Study because of the risk of reducing fresh groundwater supply availability during periods of extensive drawdown of the basin below sea level. The results of new computer modeling studies indicated that the water pumped by the salinity barrier wells would in large part come from inland, freshwater sources, rather than from San Francisco Bay. As an alternative, seawater intrusion could be prevented by maintaining groundwater elevations at a level that was three feet or more above sea level in the shallow Newark Aquifer. Limited short-term mining of the basin below this level during critically dry years when imported supplies were reduced was found to not have a long-term adverse effect on groundwater supplies.

Water flows downhill from the South Bay Aqueduct to Water Treatment Plant No. 2 and generates enough power to run the plant as it passes through hydroelectric turbines.

6. Update the IRP regularly to address the outcome of existing uncertainties and to revise cost and demand assumptions on an ongoing basis.¹⁰



On August 7, 1995, the ACWD Board formally adopted the Integrated Resources Planning Study as the District’s long-term planning document, and as the basis for preparation of engineering reports, capital improvement programs environmental reports, and implementation of recommended actions.¹¹

With a plan now in place, ACWD staff began the process of making the proposed projects and programs a reality. Although the development of the IRP took up a considerable amount of time and resources during the three years preceding its adoption, there were other developments during these years that would equally impact the District’s future, including issues surrounding long-term financing, threats to the Niles Cone Groundwater Basin, and a challenge to the District’s very existence as an independent special district.

Pay-As-You-Go No Longer Provides Long-Term Financing

The District had not included debt financing as a funding alternative for capital projects since 1965, when a general obligation bond had last been approved by the voters. As a result of the failure to twice pass a general obligation bond in the early 1970s, the ACWD Board had adopted a “pay-as-you-go” financing system for capital projects, constructing projects when sufficient funds had been accumulated (a) from current customers, and (b) from a robust series of charges for new development in the service area based on the principle that the impacts of growth in the area should be paid by that growth, and not by the existing ratepayers. By the early 1990s, the rate of capital facility spending had rapidly increased with the construction of facilities (such as Water Treatment Plant No. 2) required to meet current and future water quality objectives and regulations.

In August 1991 a consultant completed a financing alternatives study. It confirmed the need for increased revenues as a result of near-term capital facility spending, which would not be appropriate to be fully financed by existing customers, who – as of January 1992 – already were absorbing a 12 percent increase in water rates as a result of these planned capital expenditures. In addition, the District was planning to increase development-related fees and charges by 25 percent over two years, in 1992 and 1993.

To keep the proposed rate increase as low as possible and still meet the future projects’ financing needs, it was proposed that the District issue \$24.43 million in Certificates of Participation to pay for the general fund (existing ratepayer) portion of the cost of Water Treatment Plant No. 2 and for other water system improvements. In February 1995, another \$22.2 million in Certificates of Participation were issued to meet the District’s General Fund revenue requirements over the next four years.¹²

Even though the District had not been in the bond market for over twenty-five years, its AA rating allowed it to obtain very competitive financing for both issuances. Spread over a twenty-five year repayment period, the debt financings in 1992 and 1995 would enable the District to construct the needed capital facilities to meet existing and future water quality requirements without delay, while easing the rate burden on its customers by spreading the cost of repayment onto future ratepayers as well as existing ones.

Planning for the Unexpected

On Super Bowl Sunday, January 30, 1994, a threat to the Niles Cone Groundwater Basin unprecedented in the District's prior history unfolded when a Union Pacific Railroad car derailed on the bridge crossing Alameda Creek near Mission Boulevard in Fremont. In the waning moments of Super Bowl XXVIII, just as the Dallas Cowboys were in the process of defeating the Buffalo Bills, the last car in a northbound train derailed, "ripping up a mile of track and flinging two large shipping containers over a trestle and into Alameda Creek."¹³

When the two containers fell onto a concrete spillway in the creek, they burst open, disgorging 2.5 tons of automobile cleaning fluids and solvents which exploded into flames upon coming into contact with the Alameda Creek waters.

The hazardous chemicals that spilled out contaminated 2.5 million gallons of creek water, falling into an area of very porous gravels between two of the District's three inflatable rubber dams and immediately next to the District's percolation ponds. This raised immediate concern over the potential for pollution of the District's local groundwater drinking water supplies. There was a real danger that the contaminated water would force its way down

The District's percolation ponds were at risk of contamination after a hazardous materials spill in 1994.



into the aquifer from which ACWD production wells were pumping water to serve its customers. To add to the potential peril, the District's Peralta-Tyson Wellfield was located less than a half-mile away from the spill site.

All agencies involved in the spill response and cleanup effort recognized that the highest priority for any plan developed to clean up the spill would be protecting public health.

Fremont Fire Department crews arrived on the scene shortly after the accident and assumed command of the incident. The Fremont Police Department alerted nearby residents to stay indoors. The California Office of Emergency Services (OES) was immediately notified, and those officials then notified other state and federal agencies. Representatives from those agencies arrived on scene quickly that evening.

An emergency cleanup plan was put in place immediately. The plan was created by ACWD, Union Pacific, and all the other local, state, and federal agencies, who decided that the best course of action was to let the fire burn itself out rather than risk further contaminating the creek by applying water or other firefighting agents. The District's two inflatable rubber dams, one immediately upstream and the other a quarter mile downstream from the accident, were quickly inflated to trap the polluted creek water between the two dams.

The following day, January 31, results of water and soil samples showed concentrations of chemicals that were well above the maximum contaminant level for drinking water. A plan was developed to clean up the debris and remaining hazardous materials on the concrete pad where the containers had fallen, and to pump as much water as possible from the polluted section of the creek to the sanitary sewer line of the Union Sanitary District. The Sanitary District tested the water to ensure that it would not impair wastewater treatment plant performance, and then reopened and cleared an abandoned sewer line to allow the contaminated water to flow to the treatment plant. Union Pacific obtained three large pumps, which were lowered into the creek, and about one and one-half miles of hose to reach from the creek to the sewer line.

Pumps started sending 2.5 million gallons of the contaminated water to the treatment plant. Officials estimated that when the pumping was complete, about one-half million gallons of creek water containing low levels of contaminants would still remain between the two rubber dams. At that point, all of the local, state, and federal agencies involved agreed that to avoid contaminating the nearby drinking water supply, water behind the inflated dams should be released to flush the creek channel and dilute the contaminants for which cleanup was not feasible.

“While last Sunday’s spill was contained before fouling Alameda Creek water supplies, officials say the creek is vulnerable to potential disaster every day as trains carrying hazardous cargo run along the creek and cross it at a half-dozen bridges and trestles.”

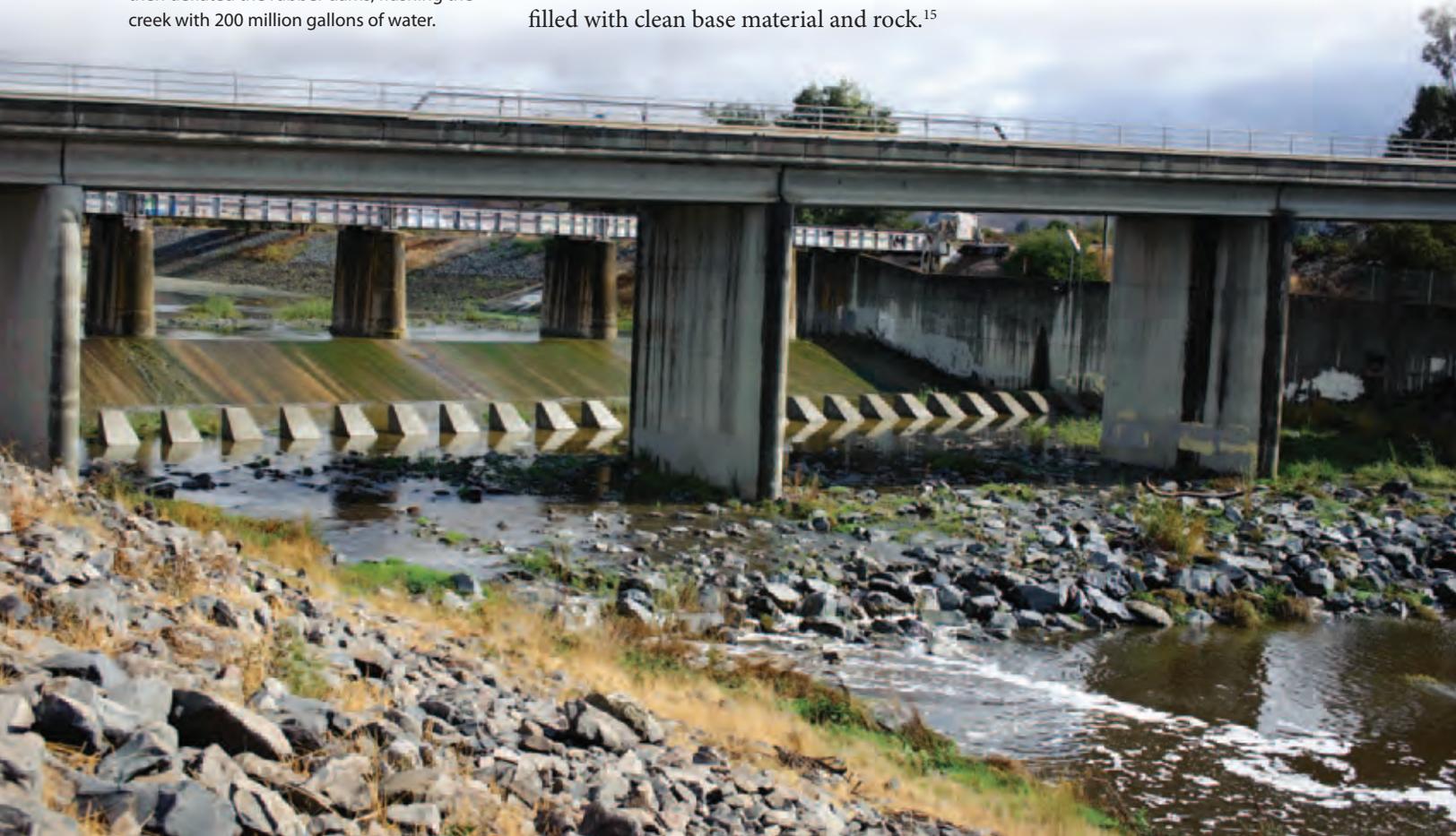
– THE MERCURY NEWS, FEB. 6, 1994

During the initial phase of emergency cleanup, there were concerns about the contamination's effect on the ecosystem of the creek, especially the fish and other wildlife that lived along the creek channel. The decision to flush the creek was based on comparing the threat to fish and wildlife to the threat to public health. The imminent threat to public health (the drinking water supply system) was believed to outweigh the potential threat to the ecosystem. This conclusion was agreed to by all parties, including the state Department of Fish and Game and the federal Fish and Wildlife Service.¹⁴ Within twenty-four hours of the initial incident, agreement had been reached on a cleanup plan, and action was taken by the all of the involved federal, state, and local agencies to immediately implement it.

Pumping continued throughout the day. By early afternoon on February 1, about 90 percent of the nearly 2.5 million gallons of contaminated water had been pumped from the creek into Union Sanitary District's sewer system. Immediately after these pumping activities were completed, ACWD initiated the continuous release of more than 200 million gallons of water from behind its upstream rubber dam into the creek to flush the remaining 10 percent of contaminated water safely to San Francisco Bay.

In 1994 a Union Pacific railroad car derailed as it crossed this bridge over Alameda Creek (background). It landed on the concrete pad behind the "teeth" shown in this photo, spilling 2.5 tons of hazardous materials. As part of the clean-up, ACWD inflated two rubber dams to trap the contaminated water, pumped it to Union Sanitary District, and then deflated the rubber dams, flushing the creek with 200 million gallons of water.

After the creek was flushed, surface water sample results confirmed that the chemical compounds originally spilled into the creek were no longer present. Soil sampling results did reveal six locations in the area directly below the spill site that had elevated levels of chemical compounds, which required the removal of soil. A total of 1,200 cubic yards of soil and rocks were excavated from the area between February 10 and March 4 and back-filled with clean base material and rock.¹⁵



Union Pacific installed fifteen groundwater monitoring wells at various distances between the spill site and ACWD's Peralta-Tyson Wellfield. Union Pacific began extracting groundwater from wells closest to the creek in early March, ultimately discharging nearly three-quarters of a million gallons of water to Union Sanitary District's sewer system. This groundwater extraction effort continued until August 1994. As an added safeguard, ACWD staff shut down operation of the Peralta-Tyson Wellfield for over six months, from the date of the spill until August 1994, when sampling confirmed that none of the monitoring wells, and none of the production wells, contained any chemical compounds from the spill.¹⁶

In addition to paying for the costs of the cleanup and remediation efforts, Union Pacific also spent nearly \$4 million to upgrade its tracks and right-of-way through Niles Canyon and the railroad bridge over Alameda Creek where the derailment occurred. This included placing heavier rails and concrete ties at the accident site and at key points throughout the canyon area to help the rails keep their spacing under heavy loads.¹⁷

The unified Incident Command response system employed to coordinate the emergency services responding to the spill was a direct outcome of lessons learned from two earlier natural disasters in the Bay Area – the 1989 Loma Prieta earthquake and the 1991 Oakland Hills fire. These events served as the impetus for the introduction of legislation by Senator Nicholas Petris that mandated the use of the Standard Emergency Management System, and the use of a unified Incident Command structure to coordinate first responders and emergency agencies.¹⁸ In addition, staff from ACWD, the City of Fremont and Union Pacific worked as a team to respond to all media and customer inquiries, ensuring that the public was kept well informed of events related to the response and cleanup effort. The efforts of local, state, and federal agencies to work together to set priorities, resolve conflicts and develop creative solutions to problems were essential in reaching a successful outcome to what could have been a public health disaster for ACWD's customers.

The Health Threat From Too Much Water

Another potential public health threat was averted in March 1995, this time affecting the District's San Francisco supply, when heavy rains in the City's Hetch Hetchy watershed set in motion a series of events that would expose potential vulnerabilities in San Francisco's water treatment and delivery system. The unusually heavy rainfall and runoff in the Hetch Hetchy system's Priest Reservoir resulted in the San Francisco Water Department's failure to properly treat highly turbid water from this event at the City's filter plant in Sunol. Turbidity is the presence of particulate matter in water, which may cause it to appear cloudy and, potentially, could increase the risk of waterborne pathogens' ability to survive the water treatment and disinfection process.



ACWD's water quality laboratory tests water for many substances, including the type of waterborne pathogens that were found in the water in 1995.

ACWD staff already had a system in place to continuously monitor the turbidity of waters at the District's Blending Facility, which mixes softer San Francisco water with harder well water. As a result, changes in the turbidity of the San Francisco supply were detected on March 13 and ACWD Operations Department staff turned off the San Francisco supply within minutes of learning that the highly turbid water was about to reach the District's system.¹⁹ The fact that ACWD has multiple sources of supply, unlike the vast majority of San Francisco's wholesale water customers, allowed the District to continue to supply water to its own customers while keeping the San Francisco supply off-line until the next day.

Because the treatment failure on March 13, 1995, did result in turbidity levels that violated state and federal water quality standards, San Francisco was required to notify the affected population, including all of its wholesale customers, of the violation. ACWD's customers were not included in the required notification due to the quick action taken by District staff on March 13. The notice from San Francisco reiterated the fact that routine bacteriological testing had determined that the turbid water did not show signs of any contamination. However, the public was also notified of "the slight risk to consumers from other potentially harmful microorganisms that may have passed through the filter plant during the treatment failure. These other microorganisms are not readily tested for and the testing results are often inconclusive."²⁰ The kinds of microorganisms referred to in this statement include *Cryptosporidium*, a microscopic single-celled parasite blamed for sickening over 400,000 people in Milwaukee and causing over 100 deaths in a 1993 water treatment plant failures.²¹

The following week, on March 20, the ACWD Blending Facility received another slug of turbid water from the Sunol Filter Plant. However, continuous monitoring records indicated that the second event was within the normally accepted range of turbidity for the San Francisco supply. Disinfection residuals were also adequate, and bacteriological analysis did not indicate the presence of any harmful bacteria.²²

Coincidentally, during the March 20 turbidity incident, ACWD Water Quality staff had voluntarily initiated the collection of water samples at the Blending Facility, following protocols of the U.S. EPA's Information Collection Rule that was designed to support future regulation of microbial contaminants. When the results of this complex and somewhat problematic testing were finally received in early April, they revealed that the March 20 sample, which included the more turbid San Francisco water, contained over 300 *Cryptosporidium* organisms, called oocysts, per 100 liters, an extremely high reading that was several times greater than previous readings, which were generally less than one oocyst per 100 liters.



Both San Francisco and ACWD took immediate action to notify county and state health officials as well as the local medical community of this finding. No instances of illness resulting from the incident were reported. Because the incubation period had already passed, it was concluded by health authorities that there was no ongoing risk to public health. In fact, it was impossible to tell if the *Cryptosporidium* observed were the species capable of infecting humans, or even if the oocysts were still alive.²³

ACWD continuously monitors and tests water for biological and other hazards.

Under a compliance order by the State Department of Health, San Francisco water officials implemented several major capital improvements to the Sunol Filter Plant, as well as procedural changes, to prevent future potential treatment failures. On ACWD's part, the value of vigilant water quality monitoring, including on-line turbidity monitoring and voluntary *Cryptosporidium* monitoring, helped the District take proactive steps to protect the public health.

“Efficiency” Proposal Threatens Existence of Single-Purpose Districts

Yet another threat to the District occurred in 1995, this time from the legislative arena, when the Tri-Cities representative in the State Senate, Bill Lockyer, introduced SB 1232. The bill proposed to merge ACWD with the Union Sanitary District, which provides wastewater collection and treatment services to the same customers to whom ACWD serves potable water.

Three years earlier, in an October 1991 letter to both boards, Senator Lockyer had suggested that the agencies should consider merging, since both provided services related to water and served the same population. Further, Lockyer stated his belief that a consolidation of both agencies could eliminate duplicative administrative functions and that a merger could enhance the agencies’ commonly shared goal of increasing water conservation among their common customer base.²⁴ According to Senator Lockyer, although he had “no complaint about either of the agencies or their board members,” the current system of having two agencies provide water and wastewater services “reflects an old and ancient reality” that did not promote governmental efficiency.²⁵ An editorial in *The Argus* later in the month of October 1991 supported Lockyer’s proposal, which it considered “so simple and obvious that it deserves unconditional support.”²⁶

Both boards of directors of ACWD and USD, in the early months of 1992, did discuss the idea of a merger of their agencies. A January 1992 concept paper that weighed the pros and cons of a consolidation of both districts concluded: “. . . the disadvantages appear to outweigh the perceived advantages of consolidation of the two districts to create a multipurpose governmental unit. As single-purpose districts, both agencies can provide the focus necessary to effectively manage water and wastewater services in the Tri-City area . . . ”²⁷ Both agencies also pledged to further assess areas where cooperative efforts might better serve their common customer base. In that vein, the ACWD and USD Boards in April 1992 entered into a Memorandum of Understanding committing to work cooperatively to develop and implement water recycling projects.²⁸ After public discussion and consideration by both boards on the proposal, the concept of a merger was pursued no further.

Senator Lockyer introduced SB 1232 in February 1995 to merge ACWD and USD by legislative mandate. Coming without warning to either agency, the bill was introduced in an atmosphere of statewide concern that there were simply too many single-purpose special districts in California. According to Lockyer, “. . . there are too many special districts and too much government.” His proposed legislation, in his view, would both save money and improve accountability.



Senator Lockyer’s bill would require the Alameda County Local Agency Formation Commission (LAFCO) to approve the merger of the districts by April 1996; voters would then have to confirm the merger at the November 1996 election. In 1993, the state Legislature gave LAFCOs in each county the power to initiate district consolidations, but, according to Lockyer “LAFCOs’ response to their new authority . . . has been underwhelming.” His proposal would “jumpstart” the process of streamlining local agencies.²⁹

The consolidation proposal came at a time when the state’s budget had been imperiled. When Governor Pete Wilson took office in early 1991, the state, hammered by defense contract cutbacks at the end of the Cold War and a worsening economy, was facing a budget deficit that was greater than the total budgets of many states.³⁰

To balance the budget, both spending reductions and higher revenues would prove necessary. Governor Wilson proposed that the expiring one-half cent sales tax levied to help restore infrastructure damaged by the Loma Prieta earthquake be made permanent, with the revenue dedicated to local public safety programs.

Legislation introduced in 1995 proposed to combine ACWD and Union Sanitary District. Investigation revealed the merger would be less efficient than existing operations and cost additional money.

In 1993 voters approved Proposition 172 at a special election called by the governor. This was part of the Governor’s plan to provide replacement revenues for local governments after he had championed efforts to shift property tax revenues from cities, counties, and special districts to schools through the Educational Revenue Augmentation Fund (ERAF). At that time, ACWD permanently lost 40 percent of its *ad valorem* property tax revenues, amounting to approximately 3 percent of the District’s operating budget, and necessitating a 13.3 percent water rate increase in January 1994.³¹

By the end of 1994, revenues were once again flowing into state coffers as a result of a rebounding economy. In his state-of-the-state address, Governor Wilson proposed a 15 percent reduction over three years in personal and corporate taxes. The proposal was quickly approved by the Republican-controlled Assembly, but was stopped in the Senate by Senator Lockyer, who was President pro Tem of the Senate. Senator Lockyer instead proposed a tax-cut/tax-increase bill designed to attract just enough Republican votes to win approval. Governor Wilson subsequently vetoed the bill, calling it a “cynical attempt to leverage tax increases on the back of worthy tax reforms.” Lockyer countered that the measure brought carefully crafted, targeted tax relief to small businesses, and that the bill provided two dollars in tax cuts for every dollar in tax increase.³²

Lessons learned from coordinated emergency response to the 1989 Loma Prieta earthquake helped the District respond to the freight train derailment along Alameda Creek.



Consolidating special districts through Senator Lockyer’s SB 1232 could be seen as an additional measure of making local government more efficient in an environment in which there were increased efforts by the state government to tap local revenue sources to make up for budget revenue shortfalls. The proposed legislation to merge ACWD and USD could also serve as a prod to make county Local Agency Formation Commissions become more active in initiating additional special district consolidations throughout the state.

Lockyer’s proposal to merge ACWD and USD quickly became more politically complicated when the City of Fremont, the largest of the three cities served by both agencies, proposed to take over management of both agencies as a way to further save costs. This proposal immediately raised concerns from Union City and Newark, who were “leery if any single city managed the [water and wastewater] services,” since concerns of the smaller cities might not be heard.³³ For both Union City and Newark, there was an underlying fear that the ability of one city to make decisions about the capacity to serve future customers in their cities could create an unfair advantage in land use decisions and thereby affect future growth.

As a result of Lockyer’s proposal, and because of the concerns of the three cities, ACWD General Manager Jim Beard and USD General Manager Steve Hayashi proposed that a study be conducted by an outside consultant to objectively assess the feasibility of merging both districts to prove the accuracy of the perception that a consolidation would automatically result in cost savings and improve service to customers. The study would address two basic points regarding financial feasibility and public accessibility that were embedded in the recent changes to LAFCO law giving LAFCO the power to initiate consolidations of special districts: 1) Would the proposal cost the same or less than the alternatives? and 2) Would the proposal promote public access and accountability?³⁴ By early April 1995, a consultant for the project had been selected, Ralph Anderson and Associates, and a Technical Advisory Committee formed, consisting of staff representatives from the ACWD and USD, the three service area cities, Alameda County LAFCO, and Senator Lockyer’s office.



The board that had been in place for ten years changed after the 1995 election. Shown here (before that election) at the dedication of Water Treatment Plant No. 2 were (left to right) Clark Redeker, Phil Utic, Joe Damas, Carl Strandberg, and Tim Rollison.



Jim Gunther
ACWD Director 1995 –
A relative newcomer to the District, Jim Gunther worked in environmental mitigation. He earned a degree in Ocean Engineering from the U.S. Coast Guard Academy and served for ten years as an officer in the U.S. Coast Guard.

While the study was being conducted and reviewed, SB 1232 quickly moved through the Legislature. By August 1995, the bill had been passed out of the policy and fiscal committees of both houses, had been overwhelmingly approved by the state Senate, and was awaiting a vote in the Assembly, where it was temporarily held in abeyance until completion of the final study report.

The final consultant's report was issued in mid-September 1995. The detailed study concluded that the projected potential amount of savings by consolidating the two agencies could amount to up to 1.3 percent of the total budget of the two agencies; however, this relatively small amount of savings would be more than offset by transitional costs amounting to over \$5 million, and by potential personnel cost increase relating to reconciling the two agencies' compensation and benefit plans. The study also found no significant opportunities to increase service levels because of the efficient and effective manner in which both districts were already operating. Based on these findings, the report's authors concluded that they did "not recommend that and reorganization of the Alameda County Water District and Union Sanitary District be pursued."



John Weed
ACWD Director 1995 –
An attorney and civil engineer, John Weed was a Colonel in the U.S. Air Force Reserves. A long-time resident of Fremont, he had served several terms as a Trustee of Ohlone Community College.

The study did recommend that the districts consider coordinated actions which might save money and improve service quality without the negative impacts associated with a full reorganization.³⁵ Both agencies subsequently committed to pursue these recommended efficiencies, including joint permitting for development projects, coordinated resource planning, public information, training, and automated mapping.³⁶ Senator Lockyer accepted the consultant's findings. SB 1232 was never acted upon by the Assembly and died when the legislative session came to a close.

Following the political tumult kicked up by SB 1232, the 1995 election year also brought changes to the District Board. In 1986, the Board had decided to consolidate Board member elections with the statewide general election cycle when the Special District Election Law was amended to encourage consolidations as a cost-saving measure. At that time, many special districts throughout the state and in Alameda County also changed their elections from the historical odd-year cycle to even years. A review of the 1992 election results, however, revealed that many voters simply did not vote for ACWD Board candidates, possibly because the ACWD race came at the end of a very lengthy candidate and initiative ballot. After this election, the Board changed back to an odd-year election cycle to better highlight ACWD candidates and water issues. Unfortunately, even though there were City Council and School Board races in Newark and Union City, the ACWD race was the only one held in the City of Fremont, and turnout was exceptionally low in the District's largest service area city.

Three candidates challenged the three incumbent ACWD directors who ran for reelection. Jim Gunther, John Weed, and former Fremont City Councilmember Art Lampert ran against incumbents Tim Rollisson, Carl Strandberg, and Clark Redeker. Rollisson was reelected, but Gunther and Weed garnered more votes than either Strandberg or Redeker, and both of these incumbents, with twenty-seven and thirty-one years of respective service, were defeated. By December 1996, the Board decided to permanently consolidate with the even-year statewide general election cycle.³⁷

The two newly elected Board members, John Weed and Jim Gunther, “campaign on platforms supportive of the district and its policies. Both said they don’t intend to make major changes.”³⁸ Jim Gunther was a relative newcomer to the service area. Having served for ten years as an officer in the U.S. Coast Guard after graduating with a degree in Ocean Engineering from the U.S. Coast Guard Academy, he was now working in the environmental mitigation field. Weed was a longtime Fremont resident, having already served several terms as a Trustee for Ohlone Community College. An attorney and civil engineer, Weed was a Colonel in the U.S. Air Force Reserves and had also completed doctoral work in water resource management at the University of Arizona. Neither Weed nor Gunther supported Senator Lockyer’s proposed merger of ACWD and the Union Sanitary District.

Upon their retirement from the Board, both Redeker and Strandberg emphasized that over their tenures with the District, they were “proudest of good water management . . . and that we were able to supply a sufficient amount of good, pure, safe water at an affordable cost.”³⁹

The year 1995 would also see the retirement of District Counsel Gene Rhodes. A former mayor of Fremont, Rhodes’ law office had represented the District since 1956, and Rhodes had personally served as ACWD’s Counsel since 1970, when Morris Hyman left the District and the law firm to found Fremont Bank. Replacing Rhodes as District Counsel was Ray McDevitt, a partner with the San Francisco law firm of Hanson Bridgett. McDevitt had represented the interests of the Bay Area Water Users Association (BAWUA) in its relations with San Francisco since the late 1970s and was a principal architect of the 1984 Settlement Agreement between the wholesale water agencies making up BAWUA and San Francisco.

At their first Board meeting in January 1996, after having been sworn in the prior month, Directors Weed and Gunther along with Directors Damas, Utic, and Rollisson would be asked to approve a 4.4 percent water rate increase, as well as a new 25-year Capital Improvement Program, both of which the Board approved.

Summary: Initiating Planning, Emergency Response, and Efficiencies to Protect the Water Supply – 1992 to 1996

During these four years, the District showed that planning for the future and determining how to finance that future are both important long-range activities vital to maintaining an agency's ability to meet the needs of its customers. The District also demonstrated that responding to unexpected emergencies and unplanned events that might dramatically affect the public health are equally important responsibilities of a water agency.

By January 1996, the District had successfully weathered a multi-year drought, successfully overcame a threat to its local groundwater supply that required coordinated emergency response actions, and fought back a threat to its continued existence as a regional water agency, all the while developing a policies and planning process that would guide the District's actions over the next thirty years.

Within the next three years, the Board would move forward on a number of fronts and projects – many outlined in the new planning process – including: implementing the dry-year storage and desalination facility projects called for to meet the reliability goal set forth in the Integrated Resources Plan, as well as other IRP-related projects; rehabilitating over 200 acres

The quarry pits had not yet been rehabilitated in this aerial photo from 1990.



of abandoned quarry pits to both increase the District's ability to replenish the groundwater basin and perform the grading work required for the East Bay Regional Park District to finally make the Quarry Lakes Regional Recreational Area a reality; dealing proactively with aging infrastructure in the water distribution system; ensuring that District facilities were sufficiently hardened to survive a major seismic event; adapting its water diversion operations to meet the challenges posed by efforts to restore a steelhead trout fishery in the Alameda Creek Watershed; protecting the Niles Cone Groundwater Basin supplies from potential degradation by contaminating spills and leaks from sources within the service area as well as from the potential effects of projects both upstream of the District in the Alameda Creek Watershed and in neighboring groundwater basins; and working to ensure that San Francisco lived up to its responsibilities to meet the demands of its suburban customers in the face of an aging regional water system.

All of these challenges would unfold in an atmosphere of increasing uncertainty as to the reliability of the District's State Water Project supplies, as well as challenging economic conditions that would affect the District's ability to adequately finance future projects and programs.

Chapter 7 Endnotes

-
- ¹ ACWD Groundwater Management Policy, adopted by the Board of Directors on January 26, 1989; and ACWD Water Quality Policy, adopted June 27, 1991.
- ² "Panel Accepts Taste Challenge," *The Argus*, December 29, 1993.
- ³ "Facts About the Delta," CALFED web site at www.calwater.ca.gov.
- ⁴ CALFED Web Site at <http://www.calwater.ca.gov/AboutCALFEDProgramHistory>.
- ⁵ American Water Works Association, "White Paper on Integrated Resources Planning," (Denver, CO., 1993).
- ⁶ Minutes, ACWD Board of Directors, Calendar Year 1993, January 14, 1993, p. 4; ACWD, "Integrated Resources Planning Study," Executive Summary, August 1995, pp. E-1 to E-3 and E-18 to E-20.
- ⁷ Minutes, ACWD Board of Directors, Calendar Year 1994, August 1, 1994, p. 4.
- ⁸ ACWD, "Integrated Resources Planning Study Executive Summary," p. ES18.
- ⁹ *Ibid.*, pp. ES20-22.
- ¹⁰ ACWD, "Integrated Resources Planning Study," Executive Summary (August 1995); "Integrated Resources Planning Study," Summary Report (August, 1995), chapters VII through IX.
- ¹¹ Minutes, ACWD Board of Directors, Calendar Year 1995, August 7, 1995, p. 1.
- ¹² Minutes, ACWD Board of Directors, Calendar Year 1991, August 8, 1991; Minutes, Calendar Year 1994, December 8, 1994, p. 6.
- ¹³ "Union Pacific upgrades rails on Niles route," *The Valley Times*, July 28, 1994.
- ¹⁴ M.H. Kazemi, "Union Pacific Train Derailment Hazardous Material Emergency Response 'Super Bowl Sunday' – January 30, 1994," (San Francisco Regional Water Quality Control Board, Oakland, CA, 1994), pp. 1-3.
- ¹⁵ *Ibid.*, p. 4.
- ¹⁶ *Ibid.*
- ¹⁷ "Union Pacific upgrades rails on Niles route," *The Valley Times*, July 28, 1994.
- ¹⁸ "The Tunnel Incident—10 Years After," *The Hills Emergency Forum*, October 3, 2001.
- ¹⁹ Interoffice memo from James D. Beard to ACWD staff, March 25, 1995.
- ²⁰ "An Important Notice from the San Francisco Water Department Regarding the Quality of Your Drinking Water," San Francisco Water Department, March 27, 1995.
- ²¹ "Parasite found in area water," *The Argus*, April 22, 1995.
- ²² *Ibid.*
- ²³ "Water Utilities Concerned About Cryptosporidium," News Advisory from SFWD and ACWD, April 21, 1995.
- ²⁴ Letter from Bill Lockyer Joseph Damas, October 8, 1991.
- ²⁵ "Sanitary, water district merger takes steps," *The Argus*, October 19, 1991.
- ²⁶ "A merger that makes sense," *The Argus*, October 1991.
- ²⁷ Interoffice memo from James Beard to ACWD Board, "USD/ACWD Merger Concept Paper," January 30, 1992, pp. 3-4.
- ²⁸ Letter from Board President Frank Borghi to Senator Lockyer, April 14, 1992.
- ²⁹ "Merger of Services Questioned," *The Argus*, April 21, 1995.
- ³⁰ Ron Roach, "Wilson's Eight Years: From Fiscal Crisis to Record Tax Cut," *Cal Tax Digest*, www.caltax.org/member/digest/dec98, p. 1.
- ³¹ Interview with ACWD Financial Services Manager Michael Yee, January 27, 2013.
- ³² Roach, "Wilson's Eight Years," p. 4.
- ³³ "Merger of Districts Questioned," *The Argus*, April 21, 1995.
- ³⁴ Senate Local Government Committee, "Implementing AB 1335: Do LAFCOs Need a Nudge to Reorganize Special Districts?" California State Legislature, January 29, 1997, p. 9.
- ³⁵ Ralph Anderson and Associates, "Reorganization Study of Alameda County Water District and Union Sanitary District," (Sacramento, CA), September 12, 1995, pp. 122-124.
- ³⁶ "USD Board Commits to Implement Cooperative Services with ACWD," USD Press Release, August 29, 1995.
- ³⁷ Minutes, ACWD Board of Directors, Calendar Year 1996, December 1, 1996, p. 1.
- ³⁸ "New officials may signal no big change," *The Argus*, December 18, 1995.
- ³⁹ "Era in water leadership ends," *The Argus*, December 18, 1995.



The District converted a concrete structure into a Larnier fish passage facility as part of efforts to restore the steelhead trout fishery in Alameda Creek.

Chapter 8 • 1996 to 2009: Taking Action

Calendar years 1996 and 1997 were productive ones for ACWD staff and Board members. Over these two years, several projects were set in motion and actions were taken that would have far-reaching effects on the quality and reliability of the District's water supplies.

By early spring of 1996, the Board had begun reviewing alternatives for obtaining the 140,000 acre-feet of storage capacity called for in the Integrated Resources Plan (IRP). This total amount of storage was needed by the year 2030 (with smaller increments required before that time) to ensure the goal of having customers experience no greater than a 10 percent shortage in supplies once every thirty years would be met. This was to be accomplished by storing excess water from the State Water Project in a reservoir or groundwater basin outside of the District's service area during wet years, and calling back the stored water to meet demands during dry years when cutbacks occurred in the District's imported supplies. By April 1996, it was determined that the most practical alternative was to explore storing water in a groundwater banking program rather than offsite surface reservoir storage.

After reviewing a range of groundwater banking programs, the Semitropic Groundwater Banking Program in Kern County was finally selected as the program that best met the District's needs.¹ The first phase of the Semitropic Groundwater Bank was begun in the early 1990s by the Semitropic Water Storage District (Semitropic) and made available 1 million acre-feet of storage. Participating agencies that decided to invest as banking partners would deliver their wet year or surplus water to Semitropic via the California Aqueduct, since Semitropic was a State Water Project contractor. When called on, Semitropic would return the water to the California Aqueduct by exchanging its entitlement (up to 133,000 acre-feet per year) and/or reversing its intake facility to return an additional 90,000 acre-feet of water to the California Aqueduct.

Groundwater banking is accomplished in two ways: either through in-lieu or direct recharge. In-lieu recharge stores water by providing water users with surface water rather than pumping groundwater, thereby storing an equal amount in the groundwater basin. Direct recharge stores water by allowing it to percolate directly to storage in the groundwater basin. At Semitropic, wet year and surplus water would be stored in the groundwater basin primarily through in-lieu recharge, whereby the district would deliver surface water to farmers for irrigation instead of pumping groundwater. To a lesser extent, Semitropic would also store water through direct

“The District has a strong and diverse service area ... very strong debt service coverage ... manageable \$108 million 5-year capital improvement program ... strong management as evidenced by a rate-setting practice that incorporates wholesale increases, long-term financial planning and formal cash policy ... and diverse water supply with access to 150,000 acre-feet of banked capacity.”

– STANDARD AND POORS,
APRIL 2009

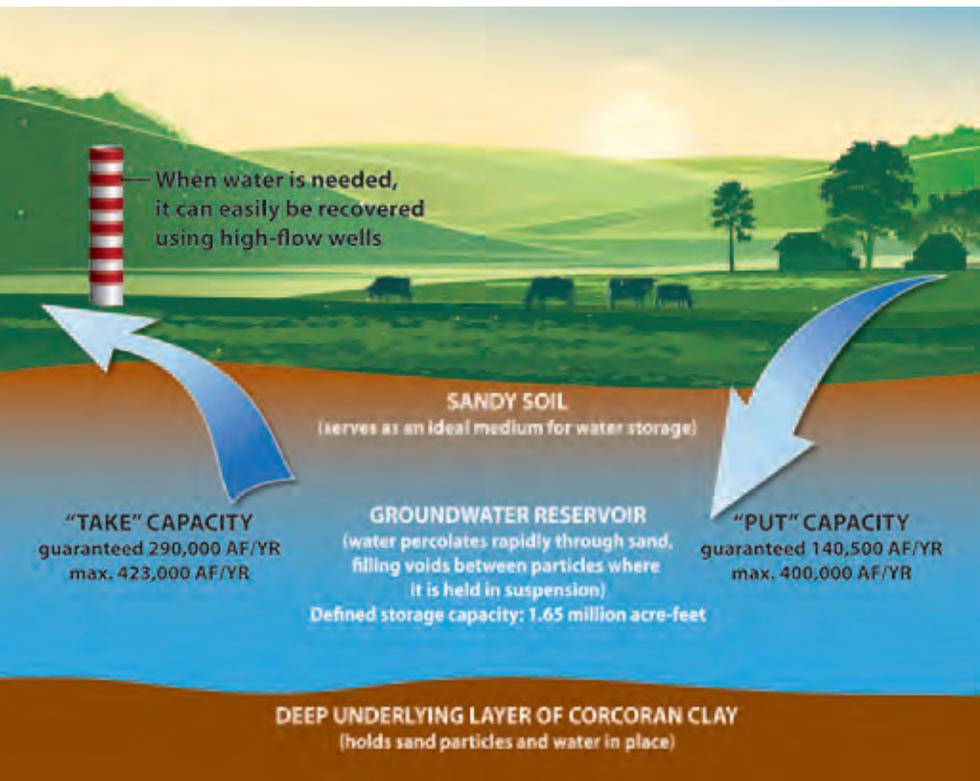
recharge, percolating water through a number of recharge basins in its service area. Initially, ACWD and Semitropic agreed to store 6,200 acre-feet of ACWD's State Water Project water via a one-year demonstration program.

Incorporating IRP Projects

By the summer of 1996, the District began to incorporate projects recommended in the IRP into the District's capital and financial planning and environmental review processes, based on the mid-range demand projections outlined in the IRP.² The conservation program elements of the IRP, designed to reduce future demands through the efficient use of water, were

incorporated into the District's 1996-2000 Urban Water Management Plan. Together, these various planning documents contained the blueprint for aggressive implementation of the District's Integrated Resources Plan over the next five years. The dry-year storage element of the IRP was the first major project to be addressed when in May 1997 the Board entered into a long-term, 30-year agreement with Semitropic for 50,000 acre-feet of storage, at a cost of \$22 million over the 30-year life of the banking agreement.³

One major change to the IRP project recommendations involved the sizing of the proposed brackish water desalination plant, which was increased from the originally recom-



This graphic explains how Semitropic's water banking program works.

mended 3 million gallons per day (mgd) of capacity to 5 mgd. As design on this facility progressed, the District incorporated a recommendation to allow the capacity of the plant to expand to 10 mgd. At this time, ACWD staff also began to search for a suitable site for the proposed plant, which needed to be located as close as possible to its supply source – wells used for the District's Aquifer Reclamation Program – and as near as possible to San Francisco Bay to allow for disposal of the highly saline concentrate water produced by the reverse osmosis treatment process.

Another milestone in the District's efforts to further improve the ability to percolate local and imported supplies to replenish the Niles Cone Groundwater Basin was reached in March 1996 when the first phase of the Quarry Pits Rehabilitation Project was completed. The quarry operators shut down

their activities over the years and the last quarry operation ended in the early 1990s. The entire area was left in an unimproved state: steep banks on the sides of the pits could slough off and greatly reduce the District's ability to percolate water into the basin, equipment was left in place and allowed to rust away over the years, and the area was covered with overgrowth that further hampered the ability to efficiently move water into the pits.

The first phase of the work at the quarries involved clearing away abandoned equipment and overgrowth on the former industrial site to facilitate the second phase of the project, which would be to stabilize the steep slopes and strengthen levees. Once completed, this effort would increase the total area of available percolation capacity in the lakes as well as increase the operating levels of the water by over 10 feet.⁴ The District's work to clear and stabilize the slopes also facilitated the future development of the Quarry Lakes Regional Recreation Area by the East Bay Regional Park District.

This effort caused concern from several residents of nearby homes, who opposed the clearing of what they considered natural habitat from the site, and, more importantly, opposed the plans for the future park development, citing traffic and parking impacts as a major concern, as well as the temporary disruption caused by construction. Both the Water District and Park District Boards actively sought to engage the residents and, as much as possible, address their concerns over the period of development of both ACWD's project and the later East Bay Regional Park District project.

By August 1998, the District had awarded an \$8 million contract for the second phase of the quarry project, which involved dewatering of the pits, moving 1.8 million yards of soil to stabilize and smooth out banks, and installing over 4,000 feet of large-diameter pipe for storm drainage.⁵ The District completed this phase of the project by the end of 1998, and work soon began on realizing the goal of developing a joint use facility that would add much needed recreational facilities for the residents of the Tri-City area as well as provide the increased storage and percolation capacity critical to the health of the District's groundwater supplies.

Addressing the Challenge of Aging Infrastructure

While planning for sufficient supplies to meet the future needs of its customers, the District was simultaneously faced with keeping up with the repair and replacement of aging infrastructure. By 1996, many of the more than 80,000 service lines connecting customers to the District's water mains were nearly forty years old, having been installed during the height of the District's explosive growth during the 1950s and '60s. By 1996, even many of the service lines installed during the 1970s and '80s were beginning to experience premature failure at alarmingly high rates.

The failing lines were made of polybutylene, a plastic derivative that had been approved for use as service line material during the late 1960s. During the late '60s and early '70s, polybutylene pipe was used in lieu of copper pipe as a result of shortages experienced during the Vietnam conflict. As a result, nearly 35,000 polybutylene service lines had been installed in ACWD's distribution system since 1970 (comprising nearly half of the District's 71,000 service lines).

By the mid-1990s, many water agencies began experiencing a spate of premature failures of polybutylene pipes and initiated litigation against the manufacturers and vendors of this pipe to recover damages as a result of these failures. By 1995, ACWD distribution system maintenance crews began responding to record-high number of polybutylene pipeline failures, when the annual number of leaks nearly doubled and continued to escalate. In 1995, there had been 262 leaks from these pipes; by 1996, that number had climbed to nearly 450, and by 1997, the number of failures had risen to nearly 600.⁶

The second phase of ACWD's quarry rehabilitation project involved dewatering the pits and smoothing out the banks. Like other pits in the project, the Kaiser Lonestar Quarry shown here had steep banks that needed to be stabilized and graded to create more area for percolation into the Niles Cone and also to allow for future park development.

To deal with these dramatically increasing rates of failure, in January 1996, the District retained the services of a materials failure consultant to study the potential causes for the high number of polybutylene leaks. The resulting study concluded that the pipes were prematurely failing due to cracking caused by flaws in the chemical makeup of the pipes themselves. As a result, the District initiated a lawsuit that was filed in April 1996 against



various manufacturers who produced and sold polybutylene pipe to the District. By July 1996, the Board also authorized hiring additional water distribution system maintenance staff and equipment to not only keep up with the number of leaks that were developing, but to also get ahead of the emergency failures through a planned replacement program. By the end of 2001, the District had spent nearly \$7 million to replace over 3,000 polybutylene service lines in the housing tracts experiencing the highest number of leaks. By April of that year, the District successfully concluded settlements with over twenty manufacturers and vendors of the defective pipe for a total of \$7.6 million without having to bear the expense of a costly court fight. Also by 2001, through the planned replacement program, District crews had replaced a sufficient-enough quantity of polybutylene pipe in the areas most susceptible to leaks that the number of emergency leaks had declined to a manageable level, and the planned replacement program could be scaled back and incorporated into the District's routine maintenance activities at minimal additional cost.⁷

Studying Seismic Vulnerability

Another infrastructure improvement effort begun in 1996 would continue well into the next century, as the District initiated the first of a series of seismic vulnerability studies to ensure that the District's distribution system facilities would be able to withstand a sizeable earthquake without experiencing catastrophic failure. The District weathered the 1989 Loma Prieta earthquake without experiencing any damage. The Hayward Fault, however, bisects the District's entire service area, and the Calaveras Fault travels along the southern part of Fremont. A sizeable earthquake on either of these faults was overdue, and such a quake could cause significant damage to infrastructure, including water facilities, in its wake.

In June 1996, the Board authorized a vulnerability analysis to be performed by a consultant addressing the identification of seismic hazards at tank and reservoir sites, and to develop mitigation alternatives and cost estimates.⁸ The recommendations from this study were subsequently incorporated into the District's 25-year Capital Improvement Program and scheduled for completion over the next ten years at a cost of over \$17 million. The completed projects included the installation of emergency generation at wellfields, reservoir and tank upgrades

Three major faults run through the Bay Area. One of these, the Hayward Fault, crosses ACWD's service area. The District has been working since the 1990s to upgrade and "harden" its system to protect against seismic activity.



and “hardening” of the District’s Mission San Jose Water Treatment Plant operations building and water tank and the new Water Quality Laboratory at ACWD headquarters, which was completed in 2005, to protect these critical facilities from a large magnitude earthquake on the Hayward Fault.

The next phase in the seismic strengthening effort would involve a study of the vulnerabilities that would need to be addressed. The scope and cost of “hardening” the distribution system against a catastrophic earthquake, when combined with the need to begin replacing aging water mains in the District’s distribution system, would by 2009 involve the District in one of its most extensive and costly capital improvement efforts in its history.

Water Quality: Upgrading Treatment and Revisiting Old Agreements

Another major capital project that was driven by both the need for seismic upgrade to meet new earthquake standards, as well as the need to meet existing and future water quality standards, involved the upgrade of the treatment process at the District’s Mission San Jose Water Treatment Plant. First built in 1976, the plant was in danger of no longer meeting new standards relating to disinfection byproducts. In light of Senator Lockyer’s legislation to consolidate ACWD and the Union Sanitary District, as well

The District’s 7,200-square foot Water Quality Laboratory at the District Headquarters on Grimmer Boulevard was completed in 2005. Analysts in the lab test water for more than 180 substances to help insure the health and safety of customers and comply with state and federal water quality regulations.



as some recent studies comparing the efficiencies of private water utilities with public agency water utilities, General Manager Jim Beard stressed the importance of exploring the most efficient and cost-effective options for upgrading the plant.⁹

Accordingly, in June 1997, the Board authorized a consultant to not only develop water quality and production requirements for the upgraded plant, but to also develop project delivery approaches that included public and private partnership options, such as “design-build-operate” by a third party, in addition to the more traditional public agency approach to such projects, which involved contracting out design and construction, but with operation remaining within the purview of the agency. Although the final consultant’s report recommended a more traditional approach, their recommendations were strongly influenced by considerations that would also have influenced a private sector “design-build-operate” approach to the project. This included further exploring the use of membrane filtration for the treatment of the State Water Project water that supplied the plant, as opposed to a traditional conventional filtration approach.

By using “microfiltration” membranes to filter the water, it was concluded that there would be less need to add chemicals to the treated water, thereby reducing the potential for disinfection byproducts, and there would not be a need to install more costly ozone treatment to disinfect the water. Further, there was the possibility that the plant could be operated remotely, without the need for round-the-clock staffing of the facility.¹⁰ The Board in mid-1998 authorized further study on the suitability of membrane treatment for State Water Project waters, a process that had never before been used on a large scale to treat water from the Sacramento-San Joaquin Delta region.

By the end of 1996, activity related to developments in the upper Alameda Creek Watershed area would also begin to have an impact on the future quality of ACWD’s groundwater supply. The issues raised would also resurrect long-standing policy concerns regarding the effects of growth in the Livermore-Amador Valley on the quality of ACWD’s groundwater supplies that had been last addressed in the early 1980s.

At that time, the District had succeeded in its efforts to have all wastewater treatment plant discharges into tributaries to Alameda Creek stopped,



One of the big capital projects in the 1990s was the upgrade of the treatment process at the Mission San Jose Water Treatment Plant. The plant was old and needed seismic upgrades. The District also sought a more efficient approach to treating water at this facility.

in both dry and wet weather conditions. From that point forward, the Livermore Amador Water Management Agency would export wastewater from the area via a pipeline that connected with the East Bay Dischargers Authority's deep water outfall in San Francisco Bay. By 1996, population growth in the Livermore-Amador and San Ramon Valleys motivated water agencies serving these areas to explore the use of recycled wastewater to supplement existing water sources.

These efforts had a two-fold objective: first, the use of recycled water would provide a "drought-proof" supply for landscape irrigation in new housing developments and thereby make potable water supplies more reliable; second, any water that was recycled within the Tri-Valley area would help

to stretch the capacity of the LAVWMA wastewater discharge pipeline, which would ultimately reach its discharge limit as new housing units connected to the sewer systems in the area.

Accordingly, the Dublin San Ramon Services District and the East Bay Municipal Utility District formed a Joint Powers Agency (DERWA) for the purpose of jointly developing recycled water projects in their respective service areas in the Tri-Valley. Once an environmental review of the impacts of their proposed projects was completed, it was found that the application of recycled water to lawns and turf had significantly higher concentrations of total dissolved solids than either agency normally supplied. Over time (several decades in some cases), this water would

seep into various creeks and arroyos that were tributary to Alameda Creek, resulting in a projected increase in the total dissolved solids of the runoff that ACWD ultimately captured in its percolation facilities along the creek and used to replenish the groundwater basin.

Because the impacts were deemed to be significant, and because the original determination of the DERWA Board was to adopt a statement of "overriding considerations" that relieved them of the need to mitigate for the future impacts of the project on ACWD, the Board of Directors determined in December 1996 to challenge the Environmental Impact Report unless an acceptable agreement to mitigate the project's impacts could be reached.¹¹

By September 1997, negotiations on a Memorandum of Understanding (MOU) regarding the project's impacts were successfully concluded. The MOU provided for mitigation of water quality impacts to ACWD by making payments to offset the additional costs that the District would incur to remove the additional salts. The estimated mitigation payments were



Wastewater from the Livermore area and Amador Valley is exported via pipeline to the East Bay Dischargers Authority's deep water outfall in San Francisco Bay. Wastewater from this area had been an issue for ACWD's groundwater supplies since the 1950s.

based on the projected capital and operating costs of the District's proposed brackish groundwater desalination facility, which was under design at the time.¹² Ultimately, ACWD received nearly \$2 million in mitigation payments for the projected project impacts.¹³

Yet another challenge to Alameda Creek's water quality from the Livermore-Amador Valley presented itself in late 1997 when the Livermore Amador Valley Water Management Agency informed the ACWD Board of a proposal to rehabilitate the existing LAVWMA export pipeline and to expand the pipeline's capacity to accommodate future growth in the Valley area. Specifically, the LAVWMA Board of Directors was proposing a project which, during intense rainstorm events projected to occur once every twenty years, would allow for the controlled release of treated wastewater effluent into Alamo Canal (a tributary to Alameda Creek) during these peak storm events.

The ACWD Board, in a workshop with LAVWMA staff and board members, reiterated its long history of concern regarding the water quality of Alameda Creek. At the time, the ACWD Board stated its concern that ACWD customers bear no cost and experience no water supply or quality impacts from the proposed project. ACWD staff was directed to work with LAVWMA to reach a joint solution to the project's impacts and to enter into negotiations that would identify and implement appropriate mitigation measures.¹⁴

By December 1998, negotiations with LAVWMA were concluded with the adoption of a Memorandum of Understanding between ACWD and LAVWMA that would ensure that ACWD received the highest reasonable level of protection from wet-weather overflows from the LAVWMA system. The agreement stipulated that during wet weather events, LAVWMA must use all available resources, including its full export pipeline capacity, discharge into San Lorenzo Creek and in-valley storage capacity, prior to any potential discharge to Alamo Canal. During these extreme wet weather events (a one-in-twenty-year storm event), LAVWMA would only be allowed to discharge highly treated effluent (secondary treatment with disinfection) when ACWD's inflatable dams were down and the District's percolation facilities completely isolated from flows in Alameda Creek.

Under these conditions, the discharged effluent would be highly diluted with the storm runoff in the creek and would flow directly to San Francisco Bay. Analysis further indicated that the discharged effluent would receive approximately 100 to 1 dilution with the storm runoff. Both the San Francisco Regional Water Quality Control Board and the State Department of Health Services concurred that the agreement between ACWD and LAVWMA would provide more than adequate protection for the

Niles Cone Groundwater Basin during these infrequent storm overflow events, including development of an automatic notification system to advise ACWD staff of discharge events.¹⁵ In addition, the MOU contemplated a mitigation payment that would go toward offsetting the cost of a proposed demineralization plant to be built at the Peralta-Tyson Wellfield, which would also provide an additional measure of protection against any possible water quality impacts, however small.

By 2009, LAVWMA had completed its Export Pipeline Project and secured the required permit for the infrequent discharges to Alamo Canal during a twenty-year or greater peak storm event. At that time, a new agreement was approved by the ACWD and LAVWMA Boards which authorized a \$9.5 million mitigation payment, as well as retaining key provisions of the 1998 agreement, including developing operational strategies to minimize overflows and maintaining the automatic notification system. The new agreement also allowed LAVWMA to pursue a permit modification that increased the frequency of wet weather discharges to no more than a ten-year event, provided that the increase would not create any additional risk to ACWD operations beyond the current permit conditions.¹⁶

The negotiations with the DERWA and LAVWMA agencies accentuated the need for continued vigilance to ensure the continued safety and quality of the local supplies coming to ACWD from the Alameda Creek Watershed. That ACWD's interests and concerns were treated fairly and were ultimately resolved to the satisfaction of all parties involved is testimony to the cooperative attitude that had developed among both public agencies and private interests with concerns for the protection of the watershed.

The District was vigilant about changes and modifications to agreements previously set with neighboring agencies to ensure the continued safety and quality of local water supplies.

That cooperation would soon be further tested with the emergence of an environmental issue that would affect the interests of several local, state, and federal agencies with responsibilities and interests in Alameda Creek.





The issue involved efforts to remove the barriers that prevented the restoration of a steelhead trout fishery in Alameda Creek.

Steelhead trout are anadromous, meaning that adult fish migrate from the ocean to coastal rivers and streams to reproduce in areas conducive to spawning. Eggs deposited in stream gravels hatch in the spring of the year, with the young fish remaining in the fresh water stream for up to two years until they migrate downstream to the ocean. Steelhead trout require sufficient fresh water flows to permit the survival of juvenile fish and to permit the migration of spawning fish and the out-migration of the young fish to the ocean as smolts.

Historically, Alameda Creek once supported a self-sustaining run of steelhead trout. The steelhead fishery in Alameda Creek declined in the early part of the twentieth century as a result of changes in the watershed, which reduced flows to San Francisco Bay. These included groundwater pumping in the Livermore Valley, Spring Valley Water Company operations in Sunol, and construction of Calaveras Reservoir. By the late 1950s, the California Department of Fish and Game (now Fish and Wildlife) determined that a viable steelhead fishery no longer existed in Alameda Creek. As a result, subsequent water supply and flood control projects were approved for construction that did not provide for accommodating anadromous fish, including San Antonio and Del Valle reservoirs, the Corps of Engineers' Alameda Creek channelization project, and ACWD groundwater recharge projects along the creek.

As restoration of the steelhead trout fishery got underway, members of the Alameda Creek Alliance rescued steelhead that were stranded below the BART Weir and transported and released them upstream past barriers in lower Alameda Creek. Pictured above are Dave Garges (left), Alameda Creek Alliance volunteer, and Pete Alexander, former fisheries biologist for East Bay Regional Park District.

Interest in a possible restoration of steelhead to Alameda Creek remained strong, however, and in 1987 a Technical Advisory Committee was formed to determine if steelhead could be reestablished and, if so, to assess what modifications would need to be made to existing conditions on the creek and at what cost. The agencies involved in this effort included the Alameda County Flood Control District, ACWD, the Zone 7 Water Agency, the City of Fremont, the East Bay Regional Park District, the San Francisco Water Department, and the state departments of Fish and Game and Water Resources.¹⁷



As discussions began on ways to restore steelhead trout to Alameda Creek, the District maintained a rainbow trout fishery in Alameda Creek.

The committee's report was published in May 1989. It concluded that the major obstacles to the reestablishment of a steelhead fishery included the 10-foot Western Pacific Railroad/BART drop structure in the Alameda Creek Flood Control Channel (which prevented the upstream migration of the steelhead trout) and the lack of sufficient stream flows to San Francisco Bay during the spring out-migration period.

The report presented four alternatives, ranging from a "no project" option that would simply maintain current conditions (while supporting the existing 20,000 to 30,000 planted rainbow trout fishery in Alameda Creek) all the way to supporting a maxi-

imum fishery restoration that would yield up to 2,400 steelhead by removal of migration barriers and increasing flows and rearing habitat along a twenty-three-mile section of Alameda Creek that stretched from Niles Canyon and into the upper watershed area.¹⁸

When the ACWD Board considered the technical committee's report in July 1989, it was believed that the alternatives that promoted a steelhead fishery would significantly impact the District's existing and planned water supply operations. Further, establishing the steelhead fishery would eliminate the existing live stream planting program of rainbow trout in Alameda Creek by the Department of Fish and Game, resulting in a net loss in recreational opportunities along the creek.

The Board clearly stated its intention to remain open to further study on this issue, should one of the resource agencies involved in the technical committee (East Bay Regional Parks or the state Department of Fish and Game) would be willing to assume lead agency responsibility to conduct the required scientific, technical, and environmental analyses, contract for a water supply to maintain the fishery, and provide the needed capital improvements and funding to implement the fishery restoration effort.¹⁹

The fishery restoration effort failed to materialize after the 1989 report, since no resource agency stepped forward to carry out the lead agency responsibilities. By 1997, however, the situation had changed as a result of several developments. First, the federal National Marine Fisheries Service found steelhead in the Central Coast an “evolutionary significant unit,” which included Alameda Creek, to be a threatened species in accordance with the Endangered Species Act; second, steelhead trout began to intermittently appear in Alameda Creek during the heavy winter rains of 1996-97; and third, a coalition of fishermen, environmentalists, biologists, and recreationists formed the Alameda Creek Alliance in an effort to help restore the steelhead fishery to its “historic habitat.”

Under the leadership of conservation advocate and founding director Jeff Miller, the Alliance began a dialog with the ACWD Board to involve the District and other public agencies in this restoration project, which it considered to be “a rare opportunity to preserve our natural wildlife heritage in a unique urbanized setting,” requesting the Water District’s “cooperation in making this restoration possible,” and urging the Board to cooperate with East Bay Regional Park District and other resource agencies to support this effort.²⁰

With the introduction of the steelhead fishery restoration effort, a new chapter in the long history of the District’s efforts to work cooperatively to protect and preserve its Alameda Creek water supply was begun, as the Board and staff struggled to find a balance among the potentially competing water supply interests and environmental concerns.

As 1997 came to a close, yet another challenge faced the Board of Directors with the retirement of General Manager Jim Beard after fourteen years with the District, serving as General Manager since 1987. Beard was a water quality expert, and under his leadership several capital projects were completed that would both improve the quality and safety of the water the District supplied to its customers, including the hydraulic Blending Facility and Water Treatment Plant No. 2, as well help ensure the security of future supplies through implementation of the Integrated Resources Plan. By the end of 1997, 50,000 acre-feet of long-term storage had been secured to help buffer the impacts of future drought on the District’s supplies. Planning also had begun on construction of a brackish groundwater desalination plant, which would further boost the District’s water supplies as well as improve the quality of water supplied to customers.

Beard’s leadership as President of the Bay Area Water Users Association resulted in making the association a stronger, more effective advocate for the interests of San Francisco’s wholesale customers. His involvement also laid the foundation, within the next few years, for its evolution into a representative policy-making body with the staffing and budget required to

not only monitor San Francisco's compliance with the terms of the Master Water Sales Agreement with its wholesale customers, but to also work cooperatively as a partner in planning and implementing needed improvements to San Francisco's Regional Water System. Beard also brought the District into a greater level of participation and involvement with other water agencies throughout the state to represent the District's interests in matters affecting water quality concerns shared by urban water agencies and in decisions surrounding the District's State Water Project supplies.



Paul Piraino

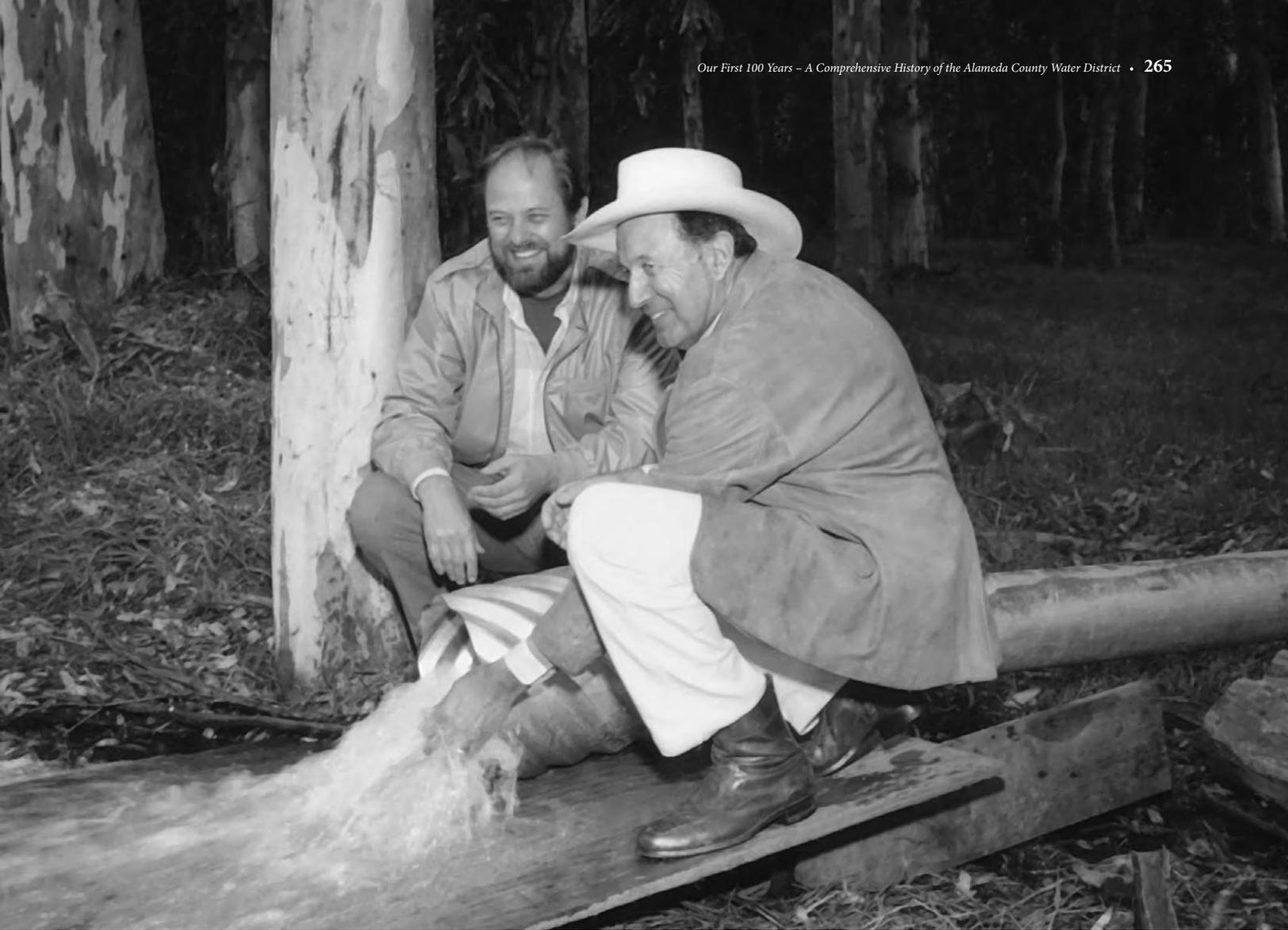
General Manager 1997 – 2009

Piraino came to ACWD in 1972 and managed industrial relations, human resources, water resources planning, and public information activities before being named general manager in 1997.

In July 1997, the Board of Directors selected Paul Piraino to replace Jim Beard upon his retirement in December. Hired by the District in 1982, Piraino had served as Personnel/Industrial Relations Manager, Manager of Administration, and as Assistant General Manager since 1992, with responsibility for providing executive support to the General Manager as well as managing the District's human resources, water resources planning, and public information activities. A graduate of Kenyon College with a master's degree in public administration from the City University of Seattle, Piraino had served in a range of human resource and managerial positions with the State of California, the County of Alameda, and the City of Daly City before coming to ACWD.

One of the first challenges facing Piraino as 1998 began involved the development of a policy position on the Alameda Creek steelhead fishery restoration issue. At the April 8, 1998, Board meeting, several members of the Alameda Creek Alliance and the general public spoke in support of the fishery restoration effort. In response, Piraino reviewed the District's long history in ensuring that the Alameda Creek watershed was protected and well managed, and that the District had always complied with all federal and state permits that governed its water diversion operations in Alameda Creek. He further expressed a willingness on the part of the District to cooperate with any appropriately designated lead agency, such as the state department of Fish and Game, in performing the technical analyses and environmental studies needed to assess the viability of a fishery, based on water supply and habitat availability. However, he also emphasized that good science needed to be at the foundation of these very important resource considerations and decisions.

Board President Joe Damas reiterated the Board's commitment to the development of the information and data necessary to make future decisions regarding the fishery restoration proposal, and urged staff to continue to cooperate and dialog with the Alameda Creek Alliance, agencies with interests in the Alameda Creek Watershed, including Zone 7 Water Agency and the City of San Francisco, and other stakeholders to further develop a plan for future action.²¹ The door had been opened to a multi-year effort to develop a consensus among involved stakeholders regarding the appropriate balance between water supply and environmental demands on Alameda Creek.



Promoting Long-Term Financial Health

In addition to issues relating to the statewide water picture, the ACWD Board dealt with several matters critical to the District's long-term financial health as 1998 came to a close. This included refinancing over \$46.7 million in debt service to save nearly \$2 million in future interest payments, as well as adopting major revisions to the District's charges assessed on new growth in the water system caused by residential, commercial, and industrial development projects.

The Board accepted a consultant's recommendations to consolidate and simplify the approach to computing several development-related charges. In this regard, long-term Capital Improvement Program projects would be reallocated so that the Facilities Acreage Charge would pay for the growth-related impacts of all water supply, water quality and reliability costs, and the Facilities Connection charge would pay for all capacity-related charges.²⁵ For the first time in several years, the Board also accepted a staff recommendation to forgo any increase in the commodity rate charged to customers during the upcoming calendar year.²⁶

In the 1980s, Director Frank Borghi (right) participated in the District's earlier effort – stocking Alameda Creek with rainbow trout.



Art Lampert
ACWD Director 1998 – 2009
A civil engineer and former Fremont City Councilmember, Lampert had an extensive background in public works and many administrative issues including debt service.

More Changes Come to the Board of Directors

In November 1998, the first change in the makeup of the Board of Directors since 1995 occurred with the defeat of Phil Utic by challenger Art Lampert in the November election. Lampert had served two terms on the Fremont City Council, from 1972 to 1980. A civil engineer, he had retired from a long career in public works that encompassed several Bay Area agencies, as well as with the State of California, ending as an administrator with the California Debt Advisory Commission, where he was responsible for making recommendations on capital projects requiring debt service for water agencies throughout the state.²⁷ In the same election, Director Joe Damas, who had served on the Board since 1979, was returned to office for a fifth term. With nearly twenty years of service, Damas became the senior member of the Board of Directors, as the District approached the beginning of a new century.

ACWD Develops Principles for Bay-Delta Program Support

The same concern for balance between water supply needs and environmental protection and enhancement that arose in considerations over the Alameda Creek steelhead fishery restoration issue would also express itself in developments in the Delta that had an impact on the District's State Water Project supply. After the 1994 Bay-Delta Accord was signed, water agencies importing supplies from the Delta hoped that CALFED's stated objective to balance water supply reliability and environmental protection would become a reality. However, operational problems that developed in the late 1990s would reveal that water supply reliability had not been adequately addressed, and many contractors to both the state and federal water projects began to experience chronic water shortages as a result.

In response to these concerns, the ACWD Board in May 1998 adopted a resolution declaring a set of principles under which it would support a Bay-Delta program solution in response to the publication of the CALFED Draft Environmental Impact Report/Environmental Impact Statement. This document set forth three alternatives for addressing the water supply and environmental problems in the Delta. One of the key principles adopted by the ACWD Board stated that support for any program proposal would depend on the crafting of a solution by CALFED that provided both ecosystem and water user benefits, including improved water quality and supply reliability.²²

The "CALFED Phase II Draft Programmatic EIR/EIS" did not identify a preferred option. However, technical analysis of a dual conveyance system, "in which water would be moved north to south through a new isolated canal and existing Delta channels," showed that this alternative had the greatest potential to best address critical problems in the Delta.²³ By the end of June 1998, the ACWD Board had reviewed and approved comments on the draft EIR/EIS, agreeing with a staged implementation of the preferred alternative, "as long as planning for all facilities in all three alternatives continues."²⁴ This meant that the ACWD Board would continue to stress support for an alternative that contained an "isolated facility" to convey water supplies around the Delta, should that alternative prove the best technical solution to meet the needs of both the environment in the Delta as well as water exporters' concerns for improved reliability and quality.

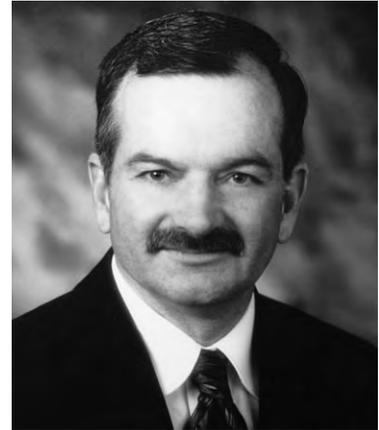
The next Board election in November of 2000 would bring further changes to the Board of Directors. Board members Jim Gunther and John Weed were reelected, but incumbent Tim Rollisson was defeated in his bid for reelection by challenger Marty Koller. A long-time Fremont resident who had been very active in community affairs, Koller was employed by the Union Sanitary District, first as a wastewater treatment plant operator and then as a utility mechanic, serving several terms as union president. Rollisson had been a strong supporter of the Alameda Creek fishery restoration effort, and was a vigorous advocate for water quality improvements, including construction of the Newark Desalination Facility.

In the fall of 2001, Director Joe Damas announced that he would retire at the end of that year – after twenty-two years of service on the Board. Damas’ technical and managerial career in water quality and wastewater management activities brought a unique perspective to the Board, allowing him to play a key role in several critical decisions facing the Board over his tenure. These included the development of the Integrated Resources Plan and other long-range planning initiatives, and his strong advocacy for purchasing additional water storage in the Semitropic Groundwater Banking Program to meet the District’s needs through the year 2030.

Replacing Damas on the Board was Judy Huang. Huang was selected by the remaining four Board members in January 2002 to fill the year that was left of Damas’ term. The best qualified from a field of several candidates who applied for the appointment, Huang was a chemical engineering graduate of U.C. Berkeley and a Water Quality Engineer for the San Francisco Bay Regional Water Quality Control Board. With Damas’ retirement, the most senior members of the ACWD Board were Directors Weed and Gunther, who had served since 1995, making the Board one of the youngest in terms of years of service since the original election in 1914.

The years between the 1998 election and when the Board would again change in 2009 and 2010 were very active ones for the District. These years would see several Integrated Resources Plan capital projects brought to completion, the development of scientific studies and plans that would provide the foundation for decisions on Alameda Creek fishery restoration efforts, the birth of a new public agency to better represent the interests of San Francisco’s suburban water customers, and the continuation of the CALFED process that would culminate in final recommendations for an alternative to address the environmental and water supply issues in the Sacramento-San Joaquin Delta.

During these years as well, programs begun many years before at the District, such as the groundwater protection program and emergency response activities, would grow to take on more complex roles and respon-



Marty Koller
ACWD Director 2000 –
Koller was a long-time Fremont resident who was very active in community affairs. He had worked at Union Sanitary District’s plants, and served several terms as union president.



Judy Huang
ACWD Director 2002 –
Huang came to the board with a degree in chemical engineering from U.C. Berkeley and experience as a water quality engineer for the San Francisco Bay Regional Water Quality Control Board.

sibilities, and the District would face head-on the logistical and financial challenges of replacing aging infrastructure and funding the costs of meeting increasingly stringent water quality regulations in the midst of an economic downturn.

The completion of the projects contained in the Integrated Resources Plan continued as a high priority effort for the Board and staff even with the

Board member changes that had taken place between 1998 and 2002. The first of these projects to be completed was the re-grading of the quarry pits that would become part of the Quarry Lakes Regional Recreation Area. The grading work allowed for more efficient groundwater percolation also accommodated the land contours more suitable for parkland.

After the Water District project was completed, the East Bay Regional Park District (EBRPD) could construct the long-planned park facility over the work done by the Water District. By August of 2000, the EBRPD had begun creating the recreational facilities for the quarry lakes, including turf grass lawns, picnic areas, shade pavilions, a swim beach, a boat launch ramp, and a trail network on the 471-acre site, including 350 acres of lakes. The park area was divided into an active recreational unit, where fishing swimming, picnicking, and other water-related activities would be allowed, and a natural unit, where visitors could hike, bike, and observe nature.

By September of 2000, ACWD and EBRPD had adopted a Quarry Lakes Coordinated Development and Operating Agreement that established a permanent agreement between the two agencies on how the joint use of the park would be administered, including provisions for maintenance and improvements on the agencies' properties. ACWD would be responsible for the water supply-related operations and maintenance, while EBRPD would be responsible and liable for maintenance of the public recreation facilities and natural areas. Special provision was made for the protection of water resources and water quality, including ensuring that

the water-related recreational facilities, such as fishing piers and swimming areas, were constructed in such a way as to accommodate the inevitable water level fluctuations caused by ACWD's water supply activities.²⁸

The culmination of over twenty-five years of joint effort by ACWD and EBRPD, the cost of the park project's first phase was \$5.8 million, of which \$3.65 million was a grant from the City of Fremont Redevelopment Agency,



The CALFED process continued in the early 2000s and culminated in final recommendations for an alternative to address the environmental and water supply issues in the Sacramento-San Joaquin Delta.

with the remainder coming from Measure AA, the Park District's open space bond measure that had been approved by the voters in 1988.²⁹ Once completed in 2002, the park would quickly become a favorite destination for Tri-City residents looking for recreational activities close to home as well as for those who wished to simply enjoy the surroundings offered by the park's natural unit.

ACWD and Park District staff worked cooperatively to continue to develop mutually beneficial programs that would both protect the quality of the water in the lakes as well as ensure recreational opportunities for area residents. This included a regulation that went into effect in 2003 prohibiting fishermen from using lead weights on their fishing lines because of the potential for contamination should lost weights collect on the bottom of the lake, and because wildlife could be harmed should fish or other animals ingest them. It is believed to be the only such ban in the state.

Anglers can trade in their leaded sinkers for their steel equivalents free of charge at the park entrance. The effort has been highly successful, resulting in the exchange of over one-half of a ton of leaded sinkers since the program began. The traded weights are then sold to metal recyclers, and the proceeds used to buy more steel tackle to exchange.³⁰ The program

ACWD's grading and rehabilitation work laid the foundation for East Bay Regional Park District's conversion of the quarry pits into Quarry Lakes Regional Recreation Area, which was completed in 2002.



was honored with a Theodore Roosevelt Environmental Award from the Association of California Water Agencies in 2004.

Similarly, the two Districts acted to quickly collaborate to counter the threat of invasive species in the Quarry Lakes that could result in costly repairs to pipelines and other facilities if left unchecked. By 2008, the incursion of Quagga and Zebra Mussels into California waterways was a growing threat. Carried in by watercraft from other areas already affected, colonies of these species could quickly grow on pipeline intakes and other critical infrastructure, causing operational and maintenance nightmares for water operators.

To counter this threat, ACWD and EBRPD quickly set up an inspection process for all watercraft coming into the Quarry Lakes area, with personnel provided by the Park District and funded by ACWD.³¹

While the joint efforts of ACWD and EBRPD were transforming the quarry lakes area into a recreational and natural resource for the residents of the Tri-Cities, these agencies were also working together with other public agencies and stakeholders to restore a steelhead trout fishery in Alameda Creek and its tributaries. By 1999, a stakeholder group had been formed to cooperatively address fishery restoration issues. The Alameda Creek Fisheries Restoration Workgroup (Workgroup) was comprised of state and federal agencies, including the California



By 2008, the incursion of Quagga and Zebra Mussels into California waterways was a growing threat. These invasive species had been carried in by watercraft from affected areas. ACWD instituted monitoring and other steps to prevent an infestation in Quarry Lakes.

Coastal Conservancy, the Department of Fish and Game, National Marine Fisheries Service, the Army Corps of Engineers, the California Department of Water Resources, and Caltrans. Also involved were stakeholder groups such as the Alameda Creek Alliance, the Tri-Valley Fly Fishermen and the Center for Ecosystem Management and Restoration; as well as several public agencies with projects and interests in Alameda Creek (including ACWD, Zone 7 Water Agency, and the San Francisco Public Utilities Commission) as well as representatives from Lawrence Livermore National Laboratory and Pacific Gas and Electric Co.

Steelhead Trout Restoration Begins

One of the Workgroup's first actions was to commission a study to determine the feasibility of a steelhead trout restoration effort in Alameda Creek. This was an especially important step for the ACWD Board, which continued to emphasize the need for good science as the foundation for any restoration effort. Board member Art Lampert summarized the feelings of the Board on this matter when he stated his belief that ACWD's primary goal "should be to do the right thing with respect to restoring the Alameda Creek native fishery, if proven to be ecologically and financially feasible."³²

Finally published in February of 2000, the “Assessment of the Potential for Restoring a Viable Steelhead Trout Population in the Alameda Creek Watershed,” study determined that the restoration of a steelhead trout population in Alameda Creek was feasible, recommending several fish passage projects in the lower creek and outlining nine essential actions for the restoration effort to succeed. This study was followed by a more comprehensive “Steelhead Restoration Action Plan for the Alameda Creek Watershed” in 2002.

In addition to studies, projects were commenced by agencies with facilities in the upper Alameda Creek Watershed area (Niles Canyon and above) to begin to remove fish passage barriers, starting with the removal of two small swim dams in the Sunol Regional Wilderness area by the EBRPD in August 2001. In 2003 the Zone 7 Water Agency took action to construct fish ladders and remove other fish passage barriers on the Arroyo Mocho and Arroyo las Positas tributaries to Alameda Creek.³³

The ACWD Board began efforts to look at other projects in the lower Alameda Creek area as the swim dam removal projects in the upper watershed were commenced. The Board was also very concerned that since the steelhead restoration effort was of regional and statewide benefit, project costs to remove passage barriers and to facilitate passage from the lower creek area be offset as much as possible with grants from state and federal sources. Without implementing such projects, it was feared that ACWD would have to significantly curtail its groundwater recharge operations, and that significant amounts of water supply could be lost.

To minimize this potential water loss and to offset project costs as much as possible, the Board directed staff to aggressively seek out grants for the first of several projects on lower Alameda Creek (the creek below Niles Canyon). Accordingly, in 2005 ACWD was awarded two grants totaling \$1 million for two projects that would improve steelhead passage in lower Alameda Creek. The first project involved the installation of a fish screen on the District’s 54-inch Alameda Creek Diversion Pipeline. Multiple self-cleaning



One of the first projects in the steelhead trout restoration effort was to remove two small swim dams in the Sunol Regional Wilderness area. Small dams such as these historically had provided water recreation for Washington Township residents. Joyland Park – shown here – had been in use since the late 1800s.



The District obtained grants to fund a self-cleaning fish screen on the Alameda Creek Diversion Pipeline. The fish screen prevents juvenile steelhead trout from ending up in the groundwater recharge pools.

cylindrical fish screens connected to the pipeline by a new section of pipe would prevent juvenile steelhead from being carried into the diversion pipeline when it was in use and keep the juveniles out of adjacent groundwater recharge ponds.

The second project decommissioned the District's farthest downstream rubber dam (Rubber Dam No. 2), which had been in operation since the 1970s. The rubber inflatable bag for this dam was reaching the end of its useful life and a decision needed to be made as to whether or not it should be replaced. The dam's concrete foundation represented a potential barrier to steelhead migration and, should the dam be reconstructed, a fish passage facility would need to be constructed at the site at considerable additional cost.

Operational analysis using the District's Integrated Resources Planning Model and groundwater model concluded that the quarry pits now receiving water diverted by the dam could be supplied with the same amount of water during the winter season – without the dam – through more efficient operation. Two years of field testing confirmed this conclusion. As a result, reconstruction of the rubber dam was deemed to not be cost-effective, and its removal was recommended. To avoid the cost of completely removing the dam's concrete foundation, technical analysis concluded that steelhead

could be attracted to pass through a type of fish ladder called a Larnier fish passage facility, which could be constructed in a notched section of the foundation. The steelhead would be attracted to the slower velocity water flowing through a series of baffles in the passage facility.³⁴

Also by the end of 2009, work had been completed on the Bunting Pond Fish Screen Facility. This pond is located in the “Above Hayward Fault” area of the groundwater basin and is supplied by water diverted from the creek by Rubber Dam No. 3, the District’s newest dam over Alameda Creek, which was constructed in the late 1980s. This project was supported by a \$600,000 grant from the California Department of Water Resources.

By the end of 2009, ACWD had successfully removed one dam and installed fish screens on two water diversion facilities, with the costs of design and construction partially offset by \$1.6 million in state and federal grants. Work was also begun in cooperation with the Alameda County Flood Control District to initiate design of a jointly funded fish passage facility that would be built over the concrete erosion control structure owned by the Flood Control District (located beneath the BART bridge over Alameda Creek) and ACWD’s Rubber Dam No. 1, both of which represented impassible barriers to steelhead migration. Design was also begun on a passage facility over the District’s Rubber Dam No. 3.

As part of the steelhead restoration effort, the District removed an obsolete rubber dam and then built a special type of fish ladder – a Larnier fish passage facility – in the concrete foundation of the decommissioned rubber dam. It not only worked well for the trout, it was cheaper than taking out the concrete foundation.



Perhaps as importantly, in October 2006 ACWD along with seventeen public agencies and non-profit organizations signed a formal agreement to collaborate on a study of stream flows and fish habitat needed for the Alameda Creek steelhead trout restoration effort. Technical studies completed in early 2008 would support the future negotiations with the National Marine and Fisheries Service on the timing and amount of water flows required from ACWD and other upstream agencies diverting from Alameda Creek that would be needed to support the steelhead migration through lower Alameda Creek. In the meantime, ACWD staff would continue to cooperate with the Alameda Creek Alliance and fishery and resource agencies to facilitate the rescue of any migrating steelhead trapped below Alameda County's "BART Weir" erosion control structure to move the fish upstream of the still existing barriers in lower Alameda Creek.

ACWD's cooperation with other public agencies and stakeholder groups to facilitate development of a steelhead fishery on Alameda Creek was a direct outcome of the Board's expressed desire to promote the protection of a threatened species while at the same time ensuring that the interest of the District's customers in preserving a healthy local groundwater supply was adequately considered in the decision making process. The District had long been active in looking out for its customers' interests in protecting both the quality of these local groundwater supplies as well as ensuring that the quantity of local runoff captured from its Alameda Creek diversion facilities was sufficient to adequately replenish these supplies.

Regional Boards Agree on Environmental Cleanup Roles

As early as the mid-1980s, the District had cooperated with staffs at the Regional Water Resources Control Board and service area cities to develop a program to ensure local oversight of leaking underground fuel tank and other contamination cleanup cases that could have an impact on groundwater supplies. This allowed ACWD staff to prioritize cases for cleanup which were most critical to the health of the Niles Cone Groundwater Basin, and to influence technical recommendations from consultants on all of these cleanup cases.

By the late 1990s, these efforts were formalized in agreements with the Regional Board and the three service area cities to name ACWD as the designated agency to oversee these cases. By the end of 2009, this relationship once again changed when the City of Newark declined to be the designated agency for coordinating and enforcing local, state, and federal hazardous materials management and environmental protection programs due to budget cutbacks. As a result, ACWD entered into an agreement with the City of Newark and the Alameda County Department of Environmental Health, which became the designated oversight agency for Newark, thus allowing ACWD to continue its regional role in overseeing

groundwater cleanup efforts in the Tri-City area.³⁵ This includes both Leaking Underground Fuel Tank (LUFT) cases and cases of other soil/groundwater contamination falling under the state's Site Cleanup Program (SCP). In addition, in 2000, ACWD entered into an agreement with the City of Hayward to work cooperatively on cases in southern Hayward that are located in areas previously detached from the ACWD service area and which overlie the Niles Cone Groundwater Basin.

ACWD staff today actively monitors over 260 sites such as dry cleaners and gas stations, which do not have a reported leak but which have the potential to impact the groundwater basin. Since the program was initiated in cooperation with the San Francisco Bay Regional Water Quality Control Board in 1988, there have been 345 cases successfully closed under the combined LUFT and SCP programs.³⁶ These sites have been sufficiently cleaned up – something which sometimes takes years of effort – to meet current state standards.

By 2014, the District's program of well sealing and well drilling inspection to ensure the protection of the groundwater basin from contamination had also resulted in the sealing of over 4,000 wells since the program's inception

Sealing Abandoned Wells for Health, Safety

Once a property has been proposed for development, ACWD technicians search well location maps dating back to 1915, as well as maps created in 1959 by the California Department of Water Resources, to determine if any abandoned wells exist on the site. They then make a site visit to determine the exact location of the wells, using geographic information system coordinates, and even metal detectors to aid in the search. Well drilling contractors are hired by the buyers or developers of the property and the wells are sealed in accordance with the District's standards and inspected by District technicians to ensure compliance. The program is funded by charges to the property owners for the location and inspection services, as well as by the Groundwater Replenishment Assessment charged to private pumpers out of the groundwater basin.

Approximately one-third of the wells identified from various historical maps and sources have been sealed. In total, counting wells drilled since the early part of the twentieth century plus wells drilled for a variety of sanctioned purposes (such as geotechnical investigations, chemical monitoring, cathodic protection, etc.) there have been more than 9,000 wells installed within the District's service area, and of this number, well over 50 percent have been sealed; many others drilled according to the District's standards continue to operate under the aegis of the District's Well Ordinance requirements.³⁸

District staff has also been instrumental in helping property owners of contaminated sites obtain grant funding through the State Water Resources Control Board's Underground Storage Tank Cleanup Fund, which is funded by a portion of the gasoline tax, to assist them in paying for the cost of groundwater contamination cleanup efforts. As of the end of 2013, over \$35 million in reimbursements had been committed for cleanup efforts at nearly 100 sites in the District's service area.³⁹

in the 1950s.³⁷ District groundwater resources staff utilize a range of means to locate abandoned wells.

Desalination Has Significant Impact on Groundwater Resources

The further development of the District’s groundwater resources took a major step forward when in September 2001 the Board of Directors broke ground on the site for the Newark Desalination Facility. The best location for the plant was determined to be a site at the end of Cherry Street in Newark. By mid-year 2001, the District had purchased the four-acre site from the adjoining PABCO manufacturing plant, and had reached an agreement with the City of Newark on all city requirements for construction of the plant.

The plant would be located in close proximity to an existing flood control channel to which the District had an existing permit to discharge brackish groundwater pumped by Aquifer Reclamation Program wells. Two of these wells, located approximately one mile from the plant site, would also serve as the supply source for the plant. Disposal of the concentrated salts

The District removes salt from brackish groundwater at the Newark Desalination Facility.



resulting from the reverse osmosis treatment process used in desalination plants can often be one of the most costly aspects of plant operations. In ACWD’s case, the state and federal fish and wildlife agencies responsible for permitting the briny discharge determined that the estuarine habitat would actually be enhanced by the proposed discharge. In addition, no expensive pipeline would be required to carry the brine to the point of discharge, resulting in further cost savings.

Design of the plant was awarded to the engineering firm of Camp Dresser and McKee and a construction contract for the plant was awarded in August 2001 at a cost of \$12.2 million.

Contracts were issued at the same time for the pipelines required to carry the brackish groundwater to the facility and to convey the treated water into the distribution system, and for needed upgrades to the supply wells. All together, the total cost for design and construction of the plant and related pipelines and pumping facilities would amount to \$34 million.⁴⁰ The City of Newark also would take action to name the street extension to the plant

“Redeker Place” in honor of long-time former ACWD Director and Newark Mayor Clark Redeker.

When dedicated to service on September 19, 2003, the 5 mgd Newark Desalination Facility would produce water of the highest quality in the District at a cost of approximately \$650 per acre-foot, including both capital and operating costs. Designed as an unmanned facility, the plant would be monitored and operated by a plant operator located at the District’s Mission San Jose Water Treatment Plant, several miles away. Energy recovery facilities were built into the plant’s operations, to further reduce costs.

The plant produces water at approximately half of the cost per acre-foot that the District pays for supplies purchased from the San Francisco Regional Water system, and represents a very reliable source of supply, even during times of drought. In April of 2005, the District and its engineering consultant Camp Dresser and McKee were honored with an Engineering Excellence Award from the American Council of Engineering Companies for the Newark Desalination Facility.⁴¹ Billions of gallons of brackish groundwater, produced by over-pumping of the groundwater basin in the early part of the twentieth century and which had previously been pumped to waste into San Francisco Bay, would now be reclaimed and used to benefit ACWD customers.

Expanding the Dry-Year Storage Program

In addition to breaking ground on the Newark Desalination Facility, the year 2001 was a pivotal one for ACWD in several other respects. The first involved the expansion of the District’s off-site storage capacity in the Semitropic Water Storage District’s groundwater banking program. The initial purchase of 50,000 acre-feet would provide sufficient dry-year storage and “take” capacity to meet ACWD’s dry-year reliability goals through the year 2020. Another 100,000 acre-feet would meet the District’s reliability goals through the year 2030.

In early 2001, Vidler Water Company, a private investment firm which had 130,000 acre-feet of storage in the Semitropic Banking Program, signaled that it was interested in selling all or a portion of its storage amount. ACWD staff initially had proposed purchasing 50,000 acre-feet. However, Board President Joe Damas strongly advocated increasing the amount to be purchased to the full 100,000 acre-feet. The Board subsequently authorized staff to pursue the 100,000 acre-feet purchase from Vidler. The final negotiated price for this purchase amounted to \$8 million, in addition to the \$14.5 million already committed to the program.⁴² Of the total amount paid to Vidler for the additional storage, 55 percent of the capital cost would be paid for by new development in the District through the Facilities Improvement Fund.

Groundwater banking lets the District store its water outside the District. The California Aqueduct transports a portion of the District's State Water Project allocation in a wet year (a "deposit") to the groundwater "bank" in Kern County. In dry years, the District can "make a withdrawal" not directly from the bank, but from State water as it is transported down the aqueduct. The "bank" then releases an equal amount back to the aqueduct as it flows toward Southern California.

The 150,000 acre-feet of storage in Semitropic would help to secure the Board's goal articulated in the Integrated Resources Plan calling for no more than a 10 percent shortage in available supplies during critically dry years. The next challenge would be to ensure that the storage space was filled with State Water Project water that was part of the District's 42,000 acre-feet annual contractual amount available for purchase from the state, or with additional State Project supplies that could be purchased over and above the contract maximum during wet years. This would be all the more challenging due to the uncertainty surrounding how much water from the Sacramento-San Joaquin Delta would be available as a result of often conflicting environmental demands for this water.



In spite of these challenges, between 1996 and 2009, the District was able to move over 110,000 acre-feet (over 36 billion gallons) of water through the California Aqueduct to Semitropic's service area in Kern County, water that would be critical to meet customer demands during future dry years.

In May of 2001, at the same time the Board of Directors was acting to purchase the additional storage in Semitropic, as well as planning for the construction of the Newark Desalination Facility, it was confronted by another challenge to its local groundwater supplies, a challenge that goes back to the earliest years of the District. The East Bay Municipal Utility District (EBMUD) proposed a local groundwater project in the San Lorenzo portion of its service area to supplement its imported supplies from the Mokelumne River. Specifically, EBMUD staff was proposing to pump up to 15 mgd during dry years from a deep aquifer located in the Southeast Bay Plain Groundwater Basin. The site for the pumping was at an area historically known as Roberts Landing. During wet years when excess water was available from its Mokelumne source, EBMUD proposed to inject this water into the deep aquifer of the Southeast Bay Plain, and to then extract it to meet demands during years of drought.

The problem for ACWD was that the deep aquifers of the Southeast Bay Plain and the Niles Cone Groundwater Basins were hydraulically connected. Going back to studies performed by the ACWD's first Engineer/General Manager Cyril Williams, it had been found that pumping from the Roberts Landing Wells, which in the early twentieth century were owned and operated by the East Bay Water Company, affected the levels of wells drawing from the Niles Cone Basin.⁴³

Pumping by the East Bay Water Company from the Roberts Landing Wells, which was exported to supply the needs of the growing population in Oakland and Berkeley in the early twentieth century, had been a source of ongoing controversy between farmers in the San Lorenzo area and the water company, with the farmers and other landowners believing that East Bay's extensive pumping and export of up to 4 mgd from Roberts Landing was dramatically affecting their local groundwater supplies, which also relied on the Southeast Bay Plain Aquifers.

In fact, soon after the Alameda County Water District was formed, voters in the unincorporated area known as Mount Eden formed the Eden Township County Water District, with the primary mission of stopping the pumping activities by the East Bay Water Company.⁴⁴ The Eden Township district was formed in 1919 and stretched from San Leandro Creek on the north to ACWD's northernmost border on the south (just above the present-day Highway 92/San Mateo Bridge area) and the city limits of Hayward and San Leandro on the east. One of the new district's first actions upon its

formation was to file suit against the East Bay Water Company to stop it from drilling more wells to expand the pumping capacity at the Roberts Landing wellfield. This became all the more imperative after East Bay increased its Roberts Landing pumping in response to low water levels in its other local supply source at Lake Chabot as a result of drought conditions.⁴⁵

East Bay Water Company did finally agree to begin limiting its pumping of the Roberts Landing Wellfield, and to progressively phase out its use by the end of the 1920s. In return, Eden Township Water District agreed to drop its lawsuit and its opposition to the construction of the company's Upper San Leandro Dam project. By the time the East Bay Municipal Utility District had acquired the facilities formerly owned by the East Bay Water Company by 1928, all pumping at Roberts Landing had ceased, and by 1930 EBMUD had sold the Roberts Landing acreage to the Trojan Power Company.⁴⁶ By 1956, EBMUD had reaffirmed its commitment to never resume pumping from the Eden Township district's service area, even if a portion of the area was to be subsequently annexed to EBMUD's service area.⁴⁷

By the start of the twenty-first century, conditions had changed significantly in the Eden Township area. Gone were the farmers who had relied on the local groundwater basin to support their crops, replaced by homes and businesses that received water from the EBMUD municipal water system. By 2001, EBMUD was actively pursuing the development of its American River supply, and needed to show that it was maximizing all of its locally available water resources, thus the interest in Roberts Landing (EBMUD had not developed any local groundwater projects before in its nearly eighty years of existence).

ACWD and the City of Hayward objected during the Environmental Review Process for the project that more work needed to be done to study the hydraulic impacts of the proposed aquifer storage and recovery project on the Niles Cone Groundwater Basin and on the aquifer underlying the City of Hayward.

After extensive negotiations, EBMUD finally agreed to a limited first project phase of 1 mgd of pumping. The impacts of this pumping could then be studied by acquiring real-time data from wells in ACWD's service area and in the City of Hayward. ACWD's groundwater model would also be extended to include the Southeast Bay Plain Groundwater Basin to further assess potential impacts. Should it be determined that ACWD's groundwater supplies would be diminished by the proposed pumping at Roberts Landing, EBMUD would be required to mitigate for the lost water supplies.

By the end of 2009, work was proceeding on the development of the more limited Roberts Landing initial project of 1 mgd of pumping capacity, and

the outcome of the various studies and modeling analyses are still pending. Although not all of the results are regarding the impact of this proposed project as of 2014, the cooperation among and between EBMUD, ACWD, and the City of Hayward will ensure that no one agency will suffer any detriment to its groundwater supplies by the actions of another.

San Francisco's Wholesale Regional Water System Needed Upgrading

While the Bayside Project was a successful example of regional cooperation among agencies with interests to protect in adjoining groundwater basins, by late 2001 a much larger set of regional concerns arose as a result of concerns over the future of the water supplies provided by the City of San Francisco to residents of Alameda, Santa Clara and San Mateo Counties. Early in the year 2000, a report by the Bay Area Water Users Association (BAWUA) was issued. Entitled "The Future of Our Water Supplies," the report provided elected officials whose agencies were members of BAWUA with a critical assessment of the San Francisco Public Utilities Commission's (SFPUC) performance in its role as the owner and operator of a regional water system that supplied water to over 2.4 million Bay Area residents and businesses.

In February 2000, the California State Auditor also issued a report finding that San Francisco's wholesale regional water system was in need of significant repair and upgrades, and that the SFPUC had made little progress, although the deficiencies had been known for at least a decade. A report issued by the SFPUC itself in January 2000 found that in the event of a major earthquake, water supplies could be cut off to customers, including ACWD, for up to 60 days.

Concerns about the risks to the region's water supplies and the lack of response from SFPUC prompted BAWUA to apply its twenty-six member agencies' political resources to help address the problem. In July 2000, the ACWD Board adopted a resolution recommending that the SFPUC take prompt action to improve regional water supply reliability and quality.⁴⁸

The twenty-six cities, special districts, and private water companies that made up the membership of BAWUA had never had the ability to make decisions about the SFPUC system that many of them relied upon for up to 100 percent of their water supplies. San Franciscans alone had a voice in the system's management and operation, even though the BAWUA agencies



ACWD's diverse water supply – from imported water, runoff in the watershed, and water stored in the groundwater basin – helps minimize the risk of water shortages.

paid for and used two-thirds of the system's water. Although representatives of BAWUA and its members had repeatedly urged SFPUC to act to fix the regional system, the lack of representation in the governance of the regional system had stymied those efforts. However, at the urging of BAWUA, SFPUC staff did begin to develop long-term strategic, financial, and capital improvement plans in the spring and summer of 2000. BAWUA offered considerable constructive support and advice into the development of these plans, as well as support to SFPUC staff at meetings of its commission on these plans.

The commission was set to adopt the plans in July 2001, but, at a SFPUC meeting attended by then-ACWD President Jim Gunther, the SFPUC chose

to indefinitely delay adopting the plans. Meetings between elected officials from BAWUA member agencies, including ACWD Board members Jim Gunther and John Weed, were held with then-Mayor Willie Brown. Further discussions followed with financial experts from both BAWUA and San Francisco to discuss any financing obstacles to the capital improvement plan, as well as address other issues of concerns.

However, since no definite action had been taken by the end of 2001, a group of BAWUA agency elected officials began to organize themselves into the Committee for Regional Water Reliability. ACWD

Directors Gunther and Weed participated in the committee, which was led by Redwood City Council member Ira Ruskin. By the end of December, Ruskin had sent a letter to Mayor Brown advising him that the committee was meeting with state Senators and Assemblymembers to “discuss alternate methods to fix and govern the regional system.”⁴⁹

San Francisco's lack of progress had also caught the attention of Assemblymember Louis Papan of San Mateo County, and he began pursuing ways to influence San Francisco to address the risks to the regional system upon which his constituents depended. As early as 1999, Papan had asked the State Auditor to make recommendations on perceived deficiencies in San Francisco's capital improvement planning process, and asked the State Legislative Counsel to provide an opinion on alternative forms of governance that could be adopted by the State Legislature to incorporate a more regional approach to representation and decision-making for the wholesale water system. In response, the SFPUC finally adopted the long-term



The Calaveras Dam replacement project is one of the San Francisco system upgrades that benefit the District and other agencies that purchase water from San Francisco.

strategic, financial, and capital improvement plans supported by BAWUA in May 2002. However, delays would continue and critical projects planned for completion were still not done.

As a final response to the risk of failure of the regional water system and the perceived lack of action by SFPUC, BAWUA undertook a legislative campaign at the beginning of 2002. BAWUA sponsored two bills carried by Assemblymember Papan and co-authored by Fremont Assembly-member John Dutra, and another bill by State Senator Jackie Speier. Speier's bill, SB 1870, created a financing agency to allow the BAWUA agencies to finance their share of the SFPUC's capital improvement program to improve the reliability of the regional system. Assemblymember Papan's bill, AB 1823, required SFPUC to complete certain critical projects in its capital improvements program, while AB 2058 allowed BAWUA agencies to create an agency with broad water planning and financial authorities.⁵⁰ Of the three proposed bills, it was AB 2058 that would provide the key to address the concerns relating to governance of the regional water system.

When the Bay Area Water Users Association was originally formed, it had no full-time staff and was guided by senior staff from its twenty-six member agencies. Involvement by elected officials was minimal in the operation of the association, which existed primarily as a vehicle for monitoring San Francisco's compliance with the terms of the settlement agreement and master water sales contract with the member agencies.

When ACWD General Manager Jim Beard became BAWUA President in the early 1990s, the need for full-time professional staff to provide support and advocacy on behalf of BAWUA with San Francisco was becoming apparent. The first full-time Executive Secretary of BAWUA was ACWD Senior Engineer Earl Lenahan, who was later succeeded by Art Jensen, who became the Association's General Manager in 1994. Jensen had an extensive background in engineering and water resources planning, having served as both a Deputy General Manager of the San Francisco PUC, as well as Assistant General Manager and Planning Manager for the Contra Costa Water District.

Jensen was able to hire a core staff of engineering and financial professionals to assist in the monitoring of the Master Water Sales Agreement with San Francisco, as well as beginning to take on a greater advocacy role on behalf of BAWUA relating to San Francisco's planning and capital improvement program development. However, the overall direction of BAWUA remained in the hands of senior member agency staff. That would soon change with the introduction of AB 2058, which proposed to create a new public agency in the Bay Area made up of the twenty-six BAWUA members.

Called the Bay Area Water Supply and Conservation Agency (BAWSCA), the new agency would have the power to acquire water and water rights; develop, store and transport water; deliver and sell water at wholesale; and acquire, construct and operate facilities to carry out the agency's purpose.⁵¹ Accordingly, the new agency could take on regional coordination responsibilities in whatever areas its board of directors deemed appropriate, as well as take on any responsibilities which San Francisco either failed to perform or did not wish to do. Most importantly, the board of directors of this new agency would be made up primarily of elected officials appointed by each member agency's board or city council. This board would become the policy-making body for BAWSCA, and would, it was hoped, create a stronger, more public forum for the advocacy of suburban wholesale customer interests than the old BAWUA organization.

A strong advocacy campaign to pass all three bills was spearheaded by BAWUA staff and member agencies during the early months of 1992. This included garnering support for the bills from other elected officials in Alameda, San Mateo and Santa Clara Counties, as well as Bay Area leaders in business and industry. ACWD Board members attended and spoke at several legislative hearings in Sacramento over the summer of 2002, and by the end of August 2002, the State Legislature and Senate had passed all three bills, which were subsequently signed into law by the Governor in September 2002.

The ACWD Board would become the first agency to declare its intention to join the newly created agency, and all twenty-five other BAWUA member agencies subsequently also took action to join the new agency. By the spring of 2003, BAWSCA was poised to begin its new role of partnering with San Francisco in the development of its long-term water supply and capital plans, as well as preparing to negotiate a new master water sales agreement between its member agencies and San Francisco, upon the expiration of the existing agreement in June 2009. ACWD Director John Weed was elected by the Board to serve on the BAWSCA board of directors, which consisted primarily of elected officials from the twenty-six wholesale customers served by San Francisco, representing 2.4 million Bay Area residents.

Delta Water Defeats Microfiltration

While the District achieved significant success with the startup of its Newark Desalination Plant, which was the first plant of its kind to be constructed in Northern California and which produced a very high-quality water at a reasonable cost, that success was not matched with the refitting of the Mission San Jose Water Treatment Plant with microfiltration treatment membranes. Microfiltration membranes are designed to mechanically filter out viruses and pathogens from raw water, which would normally

require extensive chemical additions and conventional filtration to remove. Conceptually, this would save costs in both chemicals and in plant operator time that needed to be devoted to the treatment process, as well as avoid the formation of disinfection byproducts formed through the use of ozonation disinfection.

While small-scale pilot plant testing appeared to confirm that the micro-filtration process would be effective in the treatment of State Water Project supplies coming from the Sacramento-San Joaquin Delta, startup issues would plague the plant from the time it came on-line in 2005. The membrane fibers would rapidly plug up, requiring staff to take them off-line and chemically clean them. This hindered the ability to achieve expected rates of flow. Frequent chemical cleanings, combined with stresses of short-duration filtration/backflushing cycles, resulted in high membrane fiber breakage. Instead of minimizing operator attention, the new equipment increased amounts of staff time needed to maintain lower levels of production and address membrane filtration problems.

This was the first time that micro-filtration was attempted with waters from the Delta, which, because of chemical and organic materials in Central Valley water, pose unique treatment challenges under any circumstances, and most especially with the technology at the District's treatment plant. Although the water treated at the plant easily met or surpassed all state and federal requirements, the District was unable to operate the plant at its originally designed maximum capacity of 10 mgd.

As a result of the lowered capacity at the plant, the District filed lawsuits against both its design consultant and against the membrane manufacturer. These suits were subsequently settled in 2009, and the settlements helped to offset the additional costs incurred as a result of membrane fouling and breakage problems. As of 2014, the plant produced water that met and exceeded all federal and state health standards, but at about one-third of the plant's originally designed capacity. Work continues to find ways to treat the challenging Delta water using the microfiltration membranes to achieve the originally envisioned higher levels of production.



When the District upgraded its Mission San Jose Water Treatment Plant, it installed a new microfiltration system to treat water from the Sacramento-San Joaquin Delta.

District Faces New Challenges on Several Fronts

By 2004, while the District continued to make considerable strides in implementing the recommendations of the Integrated Resources Plan to secure the reliability of its water supplies for future generations, it would continue to face challenges on several fronts, including threats to the stability of future revenues and to the very existence of special purpose districts in the state. The first challenge came in February 2004, when District staff was informed by the Bureau of State Audits that it was one of a handful of special districts across the state that would be the subject of a special audit by staff from the bureau.

The Bureau of State Audits is a bureau of the California Little Hoover Commission and is headed by the State Auditor. One of its responsibilities is to conduct audits and investigations of public entities requested by the Joint Legislative Advisory Committee of the California Legislature.⁵² In 2003, reports began to surface of abuses by water districts in both northern and southern California, including travel and meeting attendance abuses by Board members, conflicts of interest in the award of contracts and a lack of financial accountability, including long-range plans for spending reserve funds. Concern about these reports by the Joint Legislative Advisory Committee led to the direction to the Bureau of State Audits to randomly audit a handful of representative water agencies throughout the state to determine if these abuses were sufficiently widespread to require legislative action. The audit would focus on three areas: financial practices; Board member compensation, including meeting and expense reimbursement policies; and Board member conflict-of-interest issues.⁵³

When the audit report was finalized in June 2004, the State Auditor found that ACWD had very effectively combined its general reserve policy with its long-range Financial Planning Model to adequately account for all of its accumulated reserves, which were earmarked to be spent for critical capital projects in future years; that the District had effective policies and controls in place regarding both Board member expense reimbursements and meeting attendance; and that no conflicts-of-interest had been found with respect to Board authorizations of expenditures or contracts for services.⁵⁴

The report found that for some of the other water districts audited, reserve amounts were not always sufficiently justified and that some board member expenses and contract decisions were highly questionable. Accordingly, the report recommended legislation that would uniformly require special purpose districts to develop and maintain comprehensive reserve policies, and to adopt policies to ensure that board member expenses were reasonable and necessary, to report amounts paid to board members to the public, and to provide periodic training to board members in conflict-of-interest laws.

When this legislation finally became law in 2005, ACWD quickly adopted amended policies to comply with all of the law's requirements, and to further ensure transparency in its financial reporting. In fact, since 1999, the District has annually been awarded an Achievement for Excellence in Financial Reporting by the Government Finance Officers Association of the U.S. for the readability and efficiency of its Comprehensive Annual Financial Reports, which are available for public review on ACWD's website.⁵⁵

The next statewide challenge to the District in 2004 came in May when the Governor proposed that the Legislature approve a \$350 million property tax shift from special districts to the state to help offset the state's budget deficit over the next two years. For ACWD, this amounted to approximately 5 percent of the District's annual operating budget. This figure would later grow to nearly a \$2.5 million loss over the next two fiscal years, amounting to a 75 percent reduction in the District's share of *ad valorem* property taxes. To make up for this deficit, the Board of Directors determined that, since this was a state-initiated temporary reduction in revenue, a supplementary temporary water rate increase should be implemented effective in January 2005 to cover the lost revenue without permanently raising rates. The water bills sent to customers would clearly identify this temporary increase as being due to the state-initiated property tax reduction.⁵⁶

In response to the Governor's and Legislature's actions to reduce local government property taxes to make up for a deficit in the state budget, local governments, including special districts, cities and counties, sponsored Proposition 65 on the November 2, 2004 ballot. This initiative would have enacted a state constitutional amendment to require voter approval for any state legislation reducing local government revenues from 2003 levels. The local government proponents of the proposition, including ACWD, were ultimately able to use the proposition as a bargaining tool to negotiate an agreement with Governor Schwarzenegger and the California legislature to protect local government revenues.

The result was a compromise proposition, Proposition 1A, which would be placed on the same ballot as Proposition 65, and which would protect local funding for locally delivered services by prohibiting the state from reducing local governments' property tax proceeds. The provisions of the law could be suspended only in situations where the Governor declared a fiscal necessity and if two-thirds of the Legislature approved the suspension. In such cases, any funds collected from the suspension would have to be repaid to the affected local governments within three years. The proposition also required local sales tax revenues to remain with local governments and to be spent for local purposes, and further required the State to fund legislative mandates on local governments or else suspend the operation of the mandates.⁵⁷

In return for the agreement, proponents for Proposition 65 agreed to support Proposition 1A instead. Proposition 65 was ultimately defeated in November 2003 and Proposition 1A passed with nearly 84 percent of the vote.⁵⁸ With the passage of Proposition 1A, important safeguards were put in place to protect local government revenues. When the law went into effect in 2006, the District was able to rescind its temporary rate increase as a result of the State take-away of 75 percent of its property taxes. Most importantly, Proposition 1A provided protection for local government finances against any efforts of the State to use locally collected property taxes to shore up future budget deficits.

Devastation in A Different Delta

While ACWD grappled with financial challenges in August 2005, another part of the country was grappling with the aftershock of one of the costliest natural disasters in U.S. history when Hurricane Katrina made landfall in southeast Louisiana on August 29, 2005. The effects of Hurricane Katrina on the city of New Orleans were well publicized at the time, including the devastation in loss of property and life caused by levee breaches and flooding. Storm and wave surges from nearby Lake Pontchartrain had an equally disastrous effect on surrounding towns and cities. While the federal government and non-governmental organizations poured in support and aid to the victims and to begin the rebuilding process, employees from ACWD's Distribution Maintenance Division began to ask if there were some practical ways they might be able to help the recovery, beyond donations to disaster relief agencies.

A way to help soon materialized when Contra Costa Water District General Manager Wally Bishop contacted ACWD General Manager Paul Piraino and Zone 7 Water Agency General Manager Dale Myers with a proposal. Bishop had found that many small water systems had been destroyed by the hurricane, with thousands of broken water lines disrupting service to local residents. The City of Slidell had suffered over \$10 million in damages from Katrina, and the Bayou Liberty Water Association, serving a suburb of Slidell, lost service for “over 4,000 connections because of falling trees and moving structures.”⁵⁹

Lacking the resources to quickly repair the water system, and with many of its regular crews missing due to dislocations caused by the storm, Bayou Liberty was reaching out for help from other water agencies. The boards of ACWD, Contra Costa Water District, and Zone 7 water agencies answered the call. Both Contra Costa Water District and ACWD boards pledged staff resources and aid to help restore Bayou Liberty's water system, and the board of Zone 7, which does not maintain a distribution system, pledged monetary support as well.⁶⁰

In late September and early October 2005, two crews from ACWD, as well as crews from Contra Costa Water District, traveled to Slidell, equipped with tents and provisions. ACWD crew member Dave Ybarra reported that “nothing could have prepared them for the sight of the large-scale devastation. The areas damaged by the surge of water were completely flattened. Tsunami size waves went through the houses and washed them away. The storm’s force had shifted other homes up to 200 feet from their foundations.”⁶¹

Working in 100-degree temperatures and an equal level of humidity, crews of both area water districts worked 12-hour days alongside Bayou Liberty employees to help fix leaks and reconnect the water system. By the time the ACWD and Contra Costa Water District crews left Slidell after nearly three weeks, they had succeeded in restoring water service to 80 percent of the city; the remaining service connections were either under water or the building they served had been completely destroyed.⁶²

Work done by ACWD and CCWD crews filled a need that may not have been addressed by overwhelmed disaster relief agencies for quite some time, well beyond the October 2005 completion date. It exemplifies both the dedication of District staff to public service as well as the contribution that targeted volunteer assistance can provide in a large-scale disaster. In appreciation of the District’s efforts to help restore Bayou Liberty’s water system, the Board of Bayou Liberty presented the ACWD Board with an original oil painting by world-recognized wildlife artist Phil Galatas, which is now prominently displayed in the District headquarters lobby.⁶³



Crews from ACWD and Contra Costa Water District traveled to Slidell, Louisiana after Hurricane Katrina to help local agencies restore service.

The Bayou Liberty experience also underscored the need for ACWD to be as prepared as possible to respond to disasters in the ACWD service area. To address the potential for damage from either an earthquake or some other natural or man-caused disaster, the District had early on developed a robust Emergency Operations Plan. It included regular drills for staff involved in disaster-response to ensure that the plan was up to date and that employees knew their respective roles and responsibilities during an emergency.

In cooperation with the three service area cities and Republic Services, the waste management provider to the three cities, the District purchased over two miles of five-inch hose along with various valves and fittings needed to allow above-ground hook-up between fire hydrants. The hoses would be



Working in 100-degree temperatures, District crews worked 12-hour days alongside local agency crews for nearly three weeks fixing leaks and reconnecting the water system.

used to provide interim water service to customers during an emergency, such as a water main break or other service outage, while permanent repairs were underway. The pipe was stored in containers at five service area fire stations and would be transported by Republic Services trucks to the area of need.⁶⁴

Preparing for Emergencies and Disasters

As previously mentioned, by 2009 the District spent over \$50 million on investments to improve water system reliability during an emergency situation. This included construction of the Newark Desalination Facility, which would provide residents and businesses with a source of supply to the west of the Hayward Fault in the event an earthquake damaged pipelines carrying

water from the District's other water production facilities, primarily located to the east of the fault. To improve the reliability of the Mission San Jose Water Treatment Plant, the District worked in cooperation with the state Department of Water Resources and the Santa Clara Valley Water District to install a 48-inch isolation valve on the South Bay Aqueduct just below the treatment plant. This would allow the plant to continue to be supplied with water from the aqueduct should a seismic event cause a break in the pipeline further downstream of the plant as water is conveyed to Santa Clara County.

Regionally, ACWD also actively participated in pre-disaster coordination, communications, exercises, and planning with both the Alameda County Operational Area Emergency Management Organization as well as the State Office of Emergency Services, and took action to adopt the federal National Incident Management System to complement the California Standard Emergency Management System to ensure a consistent method of command and response during emergency situations.

In the wake of the terrorist events of September 11, 2001, the U.S. Environmental Protection Agency also required that all water agencies in the nation to develop a vulnerability analysis that assessed the level of potential threat of a man-made disaster, such as a terrorist attack, on their water facilities to develop a plan for better protecting potentially vulnerable facilities. Completed in 2003, the vulnerability assessment provided the information needed to update the District's already existing Emergency Response Plan to specifically address potential terrorist events.⁶⁵

The District had historically been very proactive in developing plans and programs to respond to disasters, and especially to the disruptions caused by a major earthquake. The next major phase of this ongoing effort began in early 2007 when the Board authorized an engineering study for the development of a distribution system seismic improvement program. The study would be comprehensive in scope and would include a seismic hazard assessment, evaluating the probability for ground movement due to fault rupture, creep, liquefaction, and landslides under a maximum credible seismic event on the nearly 900 miles of pipelines, as well as wellfields and production facilities, that supplied and carried water to ACWD customers.

From there, the consultant would assist the Board and staff in developing return-to-service goals and projects needed to achieve these goals, including benefit/cost analyses for a range of program scenarios, as well as recommended costs and timelines to put the improvements in place.⁶⁶ The results of this study would have far-reaching impacts upon the District's plans and resources. The final conclusions and implementation of the program will be discussed in the next chapter.

Upgrades to Boost Safety, Quality, Reliability

Dovetailing with the efforts to strengthen the District's water distribution system to restore water service to customers after an earthquake was a growing awareness that the District's water system infrastructure was growing older. Although ACWD's water system was relatively "young" in comparison to much older systems, the major growth that had occurred from the 1950 to 1970 meant that many water mains in the system were approaching the fifty-year mark. Plans needed to be in place to replace aging pipelines and other facilities before they had to be replaced on an emergency basis, a situation that would be more costly and disruptive than a planned and orderly replacement program. This was a growing national problem, as many districts and cities throughout the nation were faced with the need to replace infrastructure that was rapidly approaching the end of its useful life.⁶⁷ Most pressing was the need for the District to have an assessment made of the condition of the oldest pipelines in its system. Water mains of transite material, consisting of concrete with embedded asbestos fibers to provide tensile strength to the pipe, made up over 70 percent of the District's installed water mains and of this number, over 70 percent had been placed in the ground 40 to 60 years earlier.⁶⁸

To assess the condition of these pipelines and to recommend a replacement program, should one be necessary, the District retained a consultant to conduct a field and laboratory investigation of the condition of transite pipe in the District's system.⁶⁹ When the results of this study were presented in 2009, the assessment found that, although there had been some degradation in the pipes due to aging, the pipe strength of the transite pipe was still

above the requirements for new pipe in the ACWD system, and that the pipe had a statistical life expectancy of 75 years.

Although there was no immediate concern that would require the wholesale replacement of this pipe as a result of catastrophic failures, there was a real need to begin to methodically replace this aging pipe through a comprehensive and financially sound water main replacement program.⁷⁰ The development of a water main replacement program and the completion of a distribution system seismic improvement plan complimented one another. For instance, priority for early replacement could be placed on older water mains which crossed major fault lines. These efforts would become a major ACWD Board priority as the District approached the second decade of the twenty-first century.

The challenge of marshalling the resources to finance and build projects to replace aging infrastructure and to strengthen a water system's ability to better withstand a major earthquake were challenges that faced water agencies throughout California and the nation. This included San Francisco's regional water system, upon which over 2.6 million customers, including residents, businesses, and industries throughout the Bay Area

The District is upgrading aging pipelines and improving the system's ability to withstand a seismic event.



rely. Twenty percent of the water used by ACWD customers is supplied by the San Francisco system.

In the early 2000s, San Francisco had embarked upon an ambitious \$4.3 billion capital improvement program to upgrade its aging water system as well as strengthen the system to respond to a major seismic event. Since wholesale customers like ACWD used two-thirds of the water produced by the San Francisco system, the main burden of paying for the upgrade program would fall on these customers, which also strongly supported the Water Supply Improvement Program through the Bay Area Water Supply and Conservation Agency (BAWSCA). These agencies would also now begin paying for the program through several years of steep rate increases, with the wholesale water rate increasing nearly 125 percent between 2005 and 2010.⁷¹ Over one-third of the 9 percent water rate increase that the ACWD Board approved for Calendar Year 2007 was directly attributable to the increase in the San Francisco wholesale water rate.⁷²

Because of the financial stakes involved, the renegotiation of the expiring Water Supply Agreement between San Francisco and its twenty-six wholesale customers would be of paramount importance. Each agency had two contracts with San Francisco, both of which were set to expire in June of 2009. One master agreement contained provisions common to all wholesale customers, outlining the services that San Francisco would provide and allocating costs between San Francisco's retail (in-city) customers and wholesale customers. In addition, an individual Water Sales Contract provided each agency with unique conditions of service, including minimum and maximum daily amounts that could be taken from the San Francisco system, as well as outlining the individual water agencies' service area and locations, or turn-outs, where the water would be delivered.

The negotiations for the new agreement would be carried out by BAWSCA, led by General Manager Art Jensen and legal counsel Ray McDevitt. Working with member agencies, BAWSCA developed a list of objectives to be met for the agreement to be acceptable to the agencies. These included three over-arching goals, each with specific objectives that would the negotiators would seek to be incorporated into agreement language. The major goals included: ensuring a reliable and high quality water supply, and charging a fair price for this water.

When agreement on the terms of a new 25-year contract was reached in April 2009, BAWSCA staff reported that all of its original agreement objectives had been met. This included the following major provisions and commitments:

- San Francisco would complete the Water Supply Improvement Program by 2015

- San Francisco would maintain the regional water system to “utility standards”
- San Francisco would deliver water equitably during major system disruptions
- San Francisco would operate with water supply having priority over hydro power generation
- BAWSCA agencies would be able to transfer their contract entitlements to other members
- BAWSCA agencies could temporarily “wheel” water to one another during droughts
- San Francisco agreed to meet all Safe Drinking Water Standards
- San Francisco agreed to provide prompt notice of potential or actual violations of standards
- The basic pricing architecture of the 1984 Contract would remain in place
 - BAWSCA agencies would pay only for facilities and services benefitting them
 - Costs would be allocated on the basis of proportional annual use
 - There would be greater flexibility to prevent sharp rate fluctuations⁷³

The new agreement also retained the 184 mgd “supply assurance” previously set forth in the 1984 agreement, and also established an “interim system allocation” of 81 mgd for retail customers inside San Francisco. The total 265 mgd would be an “interim supply limitation” on the system until 2018. At that time, the San Francisco PUC would make a determination as to whether or not to approve or modify projects that would provide water in excess of the supply assurances to meet projected wholesale demands through the year 2030.⁷⁴

ACWD’s supply assurance in the new agreement was set at 13.76 mgd, representing its share of the 184 mgd supply assurance. The District’s individual water sales contract would also specify a minimum daily delivery level of slightly over 7.848 mgd.⁷⁵ This would allow the District flexibility to minimize the use of the more expensive San Francisco water in favor of less expensive local supplies (such as desalinated brackish groundwater). On May 5, 2009, the ACWD Board adopted the new Water Supply Agreement, which would have a 25-year term until 2034.⁷⁶ The steep increases in the cost of purchasing water from the San Francisco regional system were expected to continue several more years to fund the many projects that benefitted the suburban wholesale customers.

Other financial pressures facing the District included the need to begin funding the cost of replacing aging pipelines and other infrastructure, as well as ensuring that the commitments made to District retirees for promised health benefits were met, while keeping water rates paid by customers as low

as possible. With the onset of the economic recession that began in 2008, water demands in the District also fell below projected levels, due primarily to the closure of several water-intensive manufacturing and high-tech companies, including the District's largest industrial water customer, the New United Motor Manufacturing Inc. (NUMMI) plant, in 2009.

District Leverages Its AAA S&P Rating for Better Debt Management

Even in the midst of these financial pressures, the District's rates continued to be among the lowest in the Bay Area, consistently coming in within the bottom one-third of thirty comparable Bay Area water agencies, all of whom were coping with similar pressures and who had also raised rates in excess of the rate of inflation to continue to maintain service at levels to which customers had become accustomed. The District even received a financial "bill of good health" when Standard and Poor's (S&P) upgraded the ACWD's bond rating to AAA in April 2009, the highest rating possible. According to S&P, the rating reflected their view of the District's:

- Strong and diverse service area that is predominately composed of residential customers;
- Very strong debt service coverage ratios;
- Manageable \$109 million five-year capital improvement plan funded by cash balances, operating cash flows and state grants;
- Strong management as evidenced by a rate-setting practice that incorporates wholesale water increases, detailed long-term financial plan, and formal cash policy; and
- Diverse water supply, with access to 150,000 acre-feet of banked capacity [Semitropic storage].⁷⁷

By the spring and summer of 2009, the ACWD Board had acted to further strengthen the District's financial position when it authorized funding to establish an "Other Post-Employment Benefits" trust. The trust was established to begin to fully fund the value of benefits earned by the District's active and retired employees, a value that had an estimated "unfunded liability" of \$31.5 million in 2009. A reserve fund of \$5 million had already been established to begin to pre-fund the future costs of retiree health benefits.⁷⁸ Setting up the trust would allow the District to make additional annual contributions over the next 30 years to pay off the projected unfunded liability, and invest the monies to fully cover the cost of the promised benefits, including projected premium increases. The District also acted during 2008 union negotiations to reduce the costs of these benefits to employees hired after January 2009 by lowering the level of premium contribution, by reducing the level of health benefits provided, and by increasing the amount of District service to qualify for the full premium contribution level. This action had the effect of reducing the District's projected future costs by as much as 50 percent.⁷⁹

Starting in the early 1990s, the District began to once again utilize the issuance of debt to fund the cost of needed capital facilities, something it had not done since the late 1960s. The goal of this effort was to reduce the impacts of these costs on the rates paid by existing customers, and to spread the cost of facilities to future water users, who stood to also benefit from these investments in infrastructure. As a result of the AAA rating, the District was now also able to reduce the cost of future debt service by taking advantage of the lower interest rates available as a result of the favorable rating. In August 2009, the District was able to refinance \$29 million in debt originally issued in 1998, realizing a savings of \$4 million in future debt service costs.⁸⁰

To further leverage ratepayer dollars to plan and construct capital projects of critical importance, the ACWD Board approved plans for staff to apply for state and federal grants to help offset project costs. As early as the late 1990s the District had begun to explore grant opportunities, starting with a joint effort by ACWD and the Union Sanitary District to seek federal funding for proposed water recycling projects in the agencies' joint service area. This effort gained momentum during the early 2000s when state and federal grants were actively and successfully pursued for the Alameda Creek steelhead fishery restoration effort, for groundwater monitoring, and to double the capacity of the Newark Desalination Facility.

The Mayhew Reservoir is one of several in-ground reservoirs in the District's service area. Built in 1965, the reservoir has a capacity of 4.3 million gallons.

In January 2006, the District was notified that it had been one of the successful grant applicants for Proposition 50 water project bond funding,



which had been approved by the voters in 2002. The District was awarded \$2.8 million to support the expansion of the Newark Desalination Facility.⁸¹ When completed in 2010, the project would provide 10 mgd of high-quality water to service area residents. The expanded facility would not only add to the District's arsenal of local supplies to reduce its dependence on imported supplies, but it would also enable the District to achieve its long-standing goal of providing a more uniform and lower hardness water quality to area residents.

In seeking out opportunities for grant funding, the District emphasized the importance of projects that would be of regional benefit to the entire Bay Area and even to the state as a whole. It was especially felt that projects such as the Alameda Creek steelhead fishery restoration effort and Alameda Creek watershed management programs were deserving of state and federal funding because their impact went beyond the borders of the ACWD service area and addressed environmental restoration issues of statewide and national concern.

Strengthening Local and Regional Ties

In the same spirit, the District actively participated in several regional initiatives with other Bay Area water and wastewater agencies to develop plans and projects that would be of both local and regional water supply and environmental benefit, with the expectation that such plans would also attract additional state and federal funding to support their implementation. This included: supporting and participating in the development of a “Bay Area Integrated Regional Water Management Plan;” entering into agreements with Contra Costa Water District, the Zone 7 Water Agency and Santa Clara Valley Water District to assess the potential water supply benefits of expanding Contra Costa's Los Vaqueros Reservoir; and becoming a charter member of the Alameda Creek Watershed Council and working in conjunction with other agencies and parties in the watershed to implement a Watershed Protection Program Plan. On the fishery restoration effort, this included entering into a “Statement of Understanding” with the federal National Marine Fishery Service and other local, state, and federal agencies and environmental groups to support the California Central Coast Steelhead Recovery Program.⁸²

Locally, in August 2009, the District also partnered with Union Sanitary District to update the agencies' Recycled Water Feasibility Study, which had been last addressed in 2003. Recent court rulings had further reduced the future reliability of ACWD's State Water Project supply, thereby making the need to further evaluate and potentially accelerate viable (but more costly) local water management opportunities such as the appropriate use of recycled wastewater all the more imperative.⁸³

In addition to seeking out opportunities for regional cooperation, in 2009, the District also began to assess the effectiveness of its regional responsibilities within its own service area for overseeing the construction and destruction of wells. Since the 1950s, ACWD was an early and aggressive proponent of ensuring that the water supply in the Niles Cone Groundwater Basin was protected from contamination by unsealed and abandoned wells and improperly drilled wells.

To better address this effort, the District worked with its three service area cities in the early 1970s to have each city adopt well ordinances giving the District oversight and administrative responsibility for ensuring that wells within the entire service area were meeting industry standards for construction and destruction, and for ensuring that any well posing a threat to the groundwater basin would be promptly abated, by direct action and enforcement by the District, if necessary. The reason for this arrangement with the three cities was that the County Water District Act, under which the District was formed, did not provide the same level of police powers to create and enforce a well ordinance as resided with an incorporated city.

In the nearly forty years since the adoption of these ordinances, the complexity of standards for construction and destruction of wells had increased, as well as the variety of needs and uses for drilling wells, boreholes, and other projects involving excavations that could potentially serve as conduits of contamination into the groundwater basin. Amending the well ordinances to keep up with these changes proved to be a cumbersome process, and the enforcement of the ordinances via delegated authority from the cities to ACWD also posed potentially significant legal challenges should an abatement action need to be enforced.

To address these challenges, District staff proposed that special legislation be introduced that would amend the County Water District Act to give ACWD the powers required to adopt, update, and revise definitions, regulations, and standards relating to wells, as well as enforce these standards. To this end, in February 2009, the ACWD Board adopted a resolution supporting state legislation entitled “The Alameda County Water District Groundwater Protection Act,” which would provide the regional approach desired to regulate wells, exploratory holes, and other excavations that could have an impact on the groundwater basin. The proposed legislation was carried by Senator Ellen Corbett as SB 133. The legislation sailed through the state Assembly and Senate with unanimous votes and was subsequently signed by Governor Brown and became law on January 1, 2010. The ACWD Board would finally adopt its own ordinance to regulate wells and other excavations in December 2010, supported by detailed standards and requirements that could be readily updated to keep up with changing industry standards.⁸⁴

New Board Members and a New General Manager

In addition to bringing closure to several projects and initiatives, as well as starting new ones that would carry forward into the next decade, 2009 would also see changes on the Board of Directors and to senior staff at the District. In March of that year, Director Art Lampert died after a short illness, after serving over ten years on the Board. He died within days of the passing of former Board member Harry Brumbaugh, who had left the Board in 1990. Both men would be remembered for their strong sense of integrity and fiscal restraint, as well as for their advocacy for the development of the Alameda Creek Trail and the Quarry Lakes Regional Recreation Area in cooperation with the East Bay Regional Park District.

Interviews with interested candidates to fill the remainder of Director Lampert's unexpired term (which would end in December 2010) were held in May 2009. After interviewing several well-qualified candidates, the Board settled on three finalists – telecommunications executive Paul Sethy, former Fremont City Councilman Steve Cho, and water resources consultant Glenn Reynolds. After several votes, the four Board members had reached a deadlock, with two votes each going to Sethy and Cho. After another series of votes, the Board finally unanimously endorsed Glenn Reynolds to finish out Director Lampert's term.⁸⁵

In the spring of 2009, General Manager Paul Piraino announced his intention to retire from the District after twenty-seven years of service, twelve of them as General Manager. During Piraino's tenure, the District had implemented several key Integrated Resources Plan projects, including obtaining 150,000 acre-feet of storage in the Semitropic Groundwater Storage Program; completing the Newark Desalination Facility; and developing a more aggressive water conservation program. Under his oversight, the District developed several cooperative regional initiatives, including taking a constructive role in efforts to restore a steelhead fishery to Alameda Creek and in obtaining state and federal grants to help offset the cost of service area capital projects that were of regional and statewide benefit. The AAA bond rating awarded by Standard and Poor's was evidence of the fact that the District was in a strong financial position, even as water rates remained in the lower one-third of comparable Bay Area water agencies.

By July 2009, the Board of Directors had selected Walt Wadlow to replace Piraino upon his retirement at the end of the year. Wadlow had been ACWD's Operations Manager since 2007, and had worked in various capacities at the Santa Clara Valley Water District for twenty-five years after receiving his bachelors and masters degrees in civil engineering from Stanford University. At the time he left Santa Clara Valley Water District to come to ACWD, Wadlow was the Assistant General Manager/Chief Operating Officer over the district's water utility activities.



Glenn Reynolds
ACWD Director 2009 – 2010
The Board unanimously endorsed water resources consultant Glenn Reynolds to serve out the remainder of Director Art Lampert's term.



Walt Wadlow
General Manager 2009 – 2014
A civil engineer, Wadlow came to ACWD in 2007 as operations manager after working for twenty-five years with Santa Clara Valley Water District.

Yet another staff transition would take place in 2009 with the retirement of Ray McDevitt as District Counsel after fifteen years of service in that capacity. McDevitt’s knowledge of water and public agency law were indispensable in protecting the District’s interests in several critical negotiations and projects. He would be succeeded by Patrick Miyaki, who had assisted McDevitt in representing the District over the last several years, and who was also a partner in the Hanson Bridgett firm.

Summary: Increasing Reliability and Quality of Supply While Pursuing Environmental, Financial, and Regional Goals

By the end of the first decade of the twenty-first century, the District had made significant progress in implementing several projects in its Integrated Resources Plan that would increase both the reliability and quality of its



Many previous directors and staff gathered for a newspaper interview on the District’s history. They were (left to right): Paul Piraino; engineer Alan Cuenca; Directors Frank Borghi, Harry Brumbaugh, and Clark Redeker; and engineering manager Craig Hill.

local and imported supplies, while doing it in the most cost-effective ways possible and while ensuring maximum local control over the District’s resources. It reached agreements with neighboring agencies to mitigate the effects of projects that might affect either the quality or quantity of its local groundwater supplies, and further strengthened its ability to preserve and protect these local supplies through the passage of legislation that increased its control over well drilling activities in the service area. The District also worked cooperatively with other local, state, and

federal agencies and nonprofit organizations to further develop projects that would facilitate the restoration of threatened steelhead to the Alameda Creek Watershed, while making every effort to ensure that agreements on project funding and water flows were fully protective of its customers’ interests.

The Board of Directors and staff continued to support projects that would increase the reliability of its State Water Project supplies and which struck an appropriate balance with the needs of the Delta ecosystem as well. ACWD also was a strong supporter of legislation which would create a better balance between the interests of water users of the San Francisco regional water system and San Francisco through the creation of the Bay Area Water Supply and Conservation Agency. The lack of agreement over a final solution to the water supply and environmental problems plaguing the San Joaquin-Sacramento Delta, as well as steep increases in the cost of San Francisco water supplies, would continue to profoundly affect the District’s financial and water supply planning efforts.



The South Bay Aqueduct

While it reached a settlement over concerns for prematurely failing poly-butylene pipes, issues relating to how and when to replace aging infrastructure, and how to harden the District's distribution system against potential disruption from a natural disaster, such as an earthquake, were addressed in initial studies. The results and recommendations flowing from these studies would have far-reaching implications for the District's future.

Chapter 8 Endnotes

- ¹ Minutes, ACWD Board of Directors, Calendar Year 1996, April 25, 1996, p. 2.
- ² Minutes, ACWD Board of Directors, Calendar Year 1996, August 22, 1996, p. 9, and September 12, 1996, p. 1.
- ³ Minutes, ACWD Board of Directors, Calendar Year 1997, May 22, 1997, p. 5.
- ⁴ Minutes, ACWD Board of Directors, Calendar Year 1996, March 14, 1996, p. 2.
- ⁵ Minutes, ACWD Board of Directors, Calendar Year 1999, January 28, 1999, p. 4.
- ⁶ Minutes, ACWD Board of Directors, Calendar Year 1996, January 26, 1995, p. 6, and June 27, 1996, p. 3.
- ⁷ Minutes, ACWD Board of Directors, Calendar Year 2001, April 12, 2001, p. 9; email communication dated January 8, 2014 from ACWD Supervising Engineer Antoinette Lyons.
- ⁸ Minutes, ACWD Board of Directors, Calendar Year 1996, June 13, 1996, p. 5.
- ⁹ "Privatizing Water Draws Skepticism," *Oakland Tribune*, February 8, 1996.
- ¹⁰ Minutes, ACWD Board of Directors, Calendar Year 1998, May 28, 1998, p. 5.
- ¹¹ Minutes, ACWD Board of Directors, Calendar Year 1996, December 12, 1996, p. 6.
- ¹² Minutes, ACWD Board of Directors, Calendar Year 1997, September 25, 1997, p. 4.
- ¹³ Settlement Agreement Regarding ACWD-DERWA Memorandum of Understanding on Alameda Creek Water Quality Issues, effective December 14, 2006.
- ¹⁴ Minutes, ACWD Board of Directors, Calendar Year 1997, December 4, 1997, p. 1, and Calendar Year 1998, February 12, 1998, p. 4.
- ¹⁵ Letter from General Manager Paul Piraino to Tom Harchous, Alameda Creek Issues, December 17, 1998.
- ¹⁶ Minutes, ACWD Board of Directors, Calendar Year 2009, November 12, 2009, p. 13.
- ¹⁷ Executive Summary, "Technical Committee Report on Establishment of a Steelhead Fishery in Alameda Creek," Executive Summary, May 1989, p. 1; and "Technical Committee Report, Establishment of a Steelhead Fishery in Alameda Creek," May 1989, p. 1.
- ¹⁸ Executive Summary, *ibid.*, pp. 2-4.
- ¹⁹ Minutes, ACWD Board of Directors, Calendar Year 1989, July 13, 1989, p. 38; Letter from Board President Carl Strandberg to Richard Izmirian, Northern CA Council Federation of Fly Fishermen, August 11, 1989.
- ²⁰ Letter from Jeff Miller, Alameda Creek Alliance, to Joseph Damas, ACWD President, "Restoration of Salmon and Steelhead Runs in Alameda Creek," November 20, 1997; Minutes, ACWD Board of Directors, Calendar Year 1997, December 11, 1997, p. 9.
- ²¹ Minutes, ACWD Board of Directors, Calendar Year 1998, April 9, 1998, p. 6.
- ²² ACWD Resolution 98-031, adopted May 14, 1998.
- ²³ "Delta Debate," *Western Water Magazine*, Water Education Foundation, March/April, 1998, p. 1.
- ²⁴ Minutes, ACWD Board of Directors, Calendar Year 1998, June 25, 1998, p. 12.
- ²⁵ Minutes, ACWD Board of Directors, Calendar Year 1998, October 8, 1998, p. 1; October 29, 1998, p. 3; and December 17, 1998, p. 2.
- ²⁶ Minutes, ACWD Board of Directors, Calendar Year 1998, December 17, 1998, p. 2.
- ²⁷ Minutes, ACWD Board of Directors, Calendar Year 1998, December 10, 1998, p. 1.
- ²⁸ "Quarry Lakes Regional Recreation Area," East Bay Regional Park District, found at www.ebparcs.org/parks/quarry_lakes; Minutes, ACWD Board of Directors, Calendar Year 2000, September 28, 2000, p. 4.
- ²⁹ *Ibid.*, www.ebparcs.org/parks/quarry_lakes.
- ³⁰ "Quarry Lakes on Leading Edge of Lead Ban," *San Francisco Chronicle*, March 18, 2013.
- ³¹ Minutes, ACWD Board of Directors, Calendar Year 2009, April 14, 2009, p. 9.
- ³² Statement by Art Lampert, "Suggested Procedure for ACWD to Follow with Respect to the Alameda Creek Native Fishery," presented at the April 22, 1999 ACWD Board meeting, Minutes, ACWD Board of Directors, Calendar Year 1999, April 22, 1999, p. 9, and additional written statements submitted at the Board meeting.
- ³³ Alameda Creek Alliance, "Alameda Creek Steelhead Restoration Milestones," found at www.alamedacreek.org/about-us/pdf/Completed_Fish_Passage_and_Related_Projects; "Completed Fish Passage and Related Projects," found at ACWD website, www.acwd.org/index.aspx.
- ³⁴ *Ibid.*; and personal communication with ACWD Senior Water Resources Engineer Thomas Neisar, October 17, 2013.
- ³⁵ Minutes, ACWD Board of Directors, Calendar Year 1997, February 27, 1997, p. 2; April 29, 1997, p. 2; Calendar Year 2009 Minutes, September 10, 2009, p. 9.
- ³⁶ October 14, 2013 email communication with ACWD Groundwater Resources Manager Steven Inn.
- ³⁷ December 10, 2013 email communication with ACWD Well Ordinance Supervisor Michelle Myers.
- ³⁸ *Ibid.*
- ³⁹ Email communication from ACWD Groundwater Resources Manager Steven Inn, January 9, 2014.
- ⁴⁰ Minutes, ACWD Board of Directors, Calendar Year 2001, August 23, 2001, pp. 2-6; email communication from ACWD Supervising Engineer Antoinette Lyons, January 8, 2014.
- ⁴¹ Minutes, ACWD Board of Directors, Calendar Year 2005, April 12, 2005, p. 11.
- ⁴² Minutes, ACWD Board of Directors, Calendar Year 2001, May 25, 2001, p. 8.
- ⁴³ Charles H. West, "Groundwater Resources of the Niles Cone, Alameda County, CA," (Federal Land Bank of Berkeley, November 1937), p. 45.
- ⁴⁴ Undated Memorandum from President of Eden Township County Water District to Members of the Mt. Eden Improvement Club, contained in Eden Township County Water District historical files, Miscellaneous Correspondence, ACWD historical records.
- ⁴⁵ "San Lorenzo Farmers Fight Water Company," *The Hayward Journal*, November [undated] 1919, from Eden Township County Water District historical files, "Communications, 1919-1920" file folder, ACWD historical records.
- ⁴⁶ Letter from Louis Bruener, EBMUD Board President, to Eden Township County Water District Board of Directors, January 19, 1956. Found in Eden Township County Water District files, ACWD historical records.
- ⁴⁷ *Ibid.*; and letter from John W. McFarland, EBMUD General Manager to W.S. Perkins, ETCWD Board President, January 19, 1956.
- ⁴⁸ Minutes, ACWD Board of Directors, Calendar Year 2003, February 13, 2003, p. 3.
- ⁴⁹ *Ibid.*, p. 4.
- ⁵⁰ *Ibid.*, p. 6.
- ⁵¹ *Ibid.*, p. 9.
- ⁵² Bureau of State Audits website, found at www.bsa.ca.gov.
- ⁵³ Minutes, ACWD Board of Directors, Calendar Year 2004, February 12, 2004, p. 5.
- ⁵⁴ *Ibid.*, June 24, 2004, p. 4.
- ⁵⁵ ACWD Comprehensive Annual Financial Report, for Fiscal Years Ended June 2012 and June 2013, p. vii.

- ⁵⁶ Minutes, ACWD Board of Directors, Calendar Year 2004, November 9, 2004, p. 6.
- ⁵⁷ "Official Voter Information Guide," California Secretary of State, November 2004.
- ⁵⁸ University of California at Berkeley, Institute of Governmental Studies, found at www.igs.berkeley.edu/library/elections/proposition-1a-2004.
- ⁵⁹ "County water district helps out Katrina victims," *Tri-City Voice*, December 13, 2005.
- ⁶⁰ Minutes, ACWD Board of Directors, Calendar Year 2005, September 8, 2005, p. 4.
- ⁶¹ "County water district helps out Katrina victims," *Tri-City Voice*, December 13, 2005.
- ⁶² *Ibid.*
- ⁶³ Minutes, ACWD Board of Directors, Calendar Year 2007, April 20, 2007, p. 10.
- ⁶⁴ Email communication from Emergency Services Supervisor Steve Dennis, January 15, 2014.
- ⁶⁵ Memorandum from Emergency Services Supervisor Steve Dennis, email communication of January 15, 2014.
- ⁶⁶ Minutes, ACWD Board of Directors, Calendar Year 2007, March 8, 2007, p. 4.
- ⁶⁷ "Rebuilding the Past," American Water Works Association 2012 Annual Conference Video, (Denver, Colo., 2012)
- ⁶⁸ September 22, 2011 ACWD Board Presentation, Water Main Replacement Program, from January 6, 2014 email from Supervising Engineer Antoinette Lyons.
- ⁶⁹ Minutes, ACWD Board of Directors, Calendar Year 2008, November 13, 2008, p. 8.
- ⁷⁰ *Ibid.*
- ⁷¹ ACWD Board Presentation on Seismic Improvement and Water Main Replacement Programs, email from Supervising Engineer Antoinette Lyons, January 6, 2014.
- ⁷² Minutes, ACWD Board of Directors, Calendar Year 2006, November 09, 2006, p. 10.
- ⁷³ Presentation to BAWSCA Board of Directors, "Status of New Water Supply Agreement," May 21, 2009.
- ⁷⁴ San Francisco PUC Agenda Item: Staff Report to Authorize Water Supply Agreement, April 28, 2009.
- ⁷⁵ Water Sales Contract between SFPUC and ACWD, dated June 24, 2009.
- ⁷⁶ Minutes, ACWD Board of Directors, Calendar Year 2009, May 5, 2009, p. 13.
- ⁷⁷ Standard & Poor's "Ratings Direct Summary: Alameda County Water District," September 28, 2009, p. 2.
- ⁷⁸ Minutes, ACWD Board of Directors, Calendar Year 2009, May 5, 2009, p. 12.
- ⁷⁹ Bartel and Associates, "June 30, 2007 GASB 45 Actuarial Valuation—Preliminary Results," May 14, 2008.
- ⁸⁰ Minutes, ACWD Board of Directors, Calendar Year 2009, August 13, 2009, p. 7.
- ⁸¹ Minutes, ACWD Board of Directors, Calendar Year 2009, March 9, 2006, p. 5.
- ⁸² Minutes, ACWD Board of Directors, Calendar Year 2006, December 14, 2006, p. 7; Calendar Year 2007, May 3, 2007, p. 5; Calendar Year 2005, September 22, 2005, p. 4; and Calendar Year 2009, October 8, 2009, p. 6.
- ⁸³ Minutes, ACWD Board of Directors, Calendar Year 2009, August 13, 2009, p. 9.
- ⁸⁴ ACWD Ordinance No. 2010-01, adopted December 10, 2010.
- ⁸⁵ Minutes, ACWD Board of Directors, Calendar Year 2009, April 30, 2009, p. 1 and May 5, 2009, p. 1.



Chapter 9 • 2009 to 2014: Looking Ahead

As the District approached its 100th anniversary, little did it realize that another, more ominous milestone would mark the years leading up to its 2014 centennial – that the three years from 2010 through 2013 would become known as the driest three years to be experienced out of the last 143 years on the Alameda Creek Watershed, and that 2013 would be only two-tenths of an inch above the driest of these 143 years.¹

Other challenges would also confront the District as the second decade of the twenty-first century dawned. Almost immediately in 2010, the Board and staff were faced with the challenge of developing plans to implement recommendations growing out of the recently completed seismic vulnerability assessment and water main replacement studies. This effort would have far-reaching effects, both with respect to workload and financing.

And as the District entered the second decade of the twenty-first century, the goal of ensuring a reliable water supply for future generations – harkening back to the original impetus for the District’s founding in 1914 – would continue to resonate and take on new meaning, at the statewide, regional, and local levels.

This final chapter of *Our First 100 Years* examines these issues and includes comments from interviews on these issues conducted in 2014 with current ACWD Board Members: Board President Paul Sethy, Vice President Martin Koller, and members James Gunther, Judy Huang, and John Weed.

In November 2009, the California Legislature passed, and Governor Schwarzenegger signed, the most comprehensive water resources package to come out of the state since the 1960s. The plan was made up of four policy bills and an \$11.4 billion bond. The new laws, which went into effect in January 2010:

- established a Delta Stewardship Council to develop a plan to guide actions in the Delta in a way that furthers the co-equal goals of Delta restoration and water supply reliability;
- set an ambitious water conservation policy that requires urban water agencies to reduce water consumption by 20 percent by 2020, as well as requiring agricultural water users to develop water management plans for the first time in the state’s history;
- required, for the first time in California’s history, that local agencies monitor the water elevations in their groundwater basins to more effectively manage this important resource during both normal water years and drought conditions;
- and required in-Delta water users to report all water use.

“The culture of ACWD has had a sense of service embedded in it – consistency and reliability are hallmarks, with a high level of professionalism.”

– ACWD DIRECTOR JOHN WEED,
JULY 2014

Perhaps as importantly for future policy considerations, the 2009 Delta Reform Act also mandated reduced reliance on the Delta for future water supplies.² Implementation of the policy bills would, to a large degree, depend upon voter approval of the \$11.4 billion bond issue.³ Early in 2010 the ACWD Board took a support position in favor of the ballot measure as proposed, since there was opportunity to apply for at least \$44 million in grant funding for needed District capital projects under the various categories covered by the legislation.⁴ For a variety of reasons, the bond issue was not placed on either the November 2010 or November 2012 ballots, and by the spring of 2014, it remained stalled in the state legislature while alternative proposals were considered, since the original bill was dismissed by many as “too divisive to pass,”⁵ including the contentious issue of funding for additional surface storage reservoirs in the state.

The deadlock over a water bond was finally broken by negotiators for the Governor and Legislature when, on August 13, 2014, Governor Brown signed legislation to put a comprehensive, but smaller, \$7.54 billion water bond before voters in November 2014. Entitled Proposition 1, the measure would, upon voter approval, authorize general obligation bonds for state water supply infrastructure projects, such as public water system improvements, surface and groundwater storage, drinking water protection, water recycling and advanced water treatment technology, water supply management and conveyance, wastewater treatment, drought relief, emergency water supplies, and ecosystem and watershed protection and restoration. Approximately one-third of the proposed bond would be dedicated to water storage projects, dams, and reservoirs. Believing that Proposition 1 could provide significant resources to ACWD and other Bay Area water agencies to improve local and regional water supply reliability and water quality, the ACWD Board on September 11, 2014, unanimously supported the proposition.⁶

Delta Conveyance Facility Debated

The original 2010 bond as well as Proposition 1, although contentious in some quarters for their inclusion of water storage projects, specifically did not include funding for a Delta conveyance facility, an issue that continues to be debated by various environmental and water interests in the state. This debate gained more public and media attention in 2012 with the publication of the Bay Delta Conservation Plan (BDCP), the culmination of seven years of effort on the part of state, federal, and local water and environmental agencies and interest groups. According to state Department of Water Resources Director Mark Cowin:

“Since voters considered the idea of a ‘peripheral canal’ to carry Sacramento River water around the Delta, we’ve gained 30 years’ worth of knowledge. We now know far more about how:

- The existing diversion system in the Delta does not work for native fish species;

- Seismic risks threaten the Delta water delivery system, which depends on vulnerable earthen levees; and
- Climate change is already raising sea levels, with more to come.²⁷

The BDCP proposes to address these environmental and water supply challenges by constructing three new intakes with fish screens along the Sacramento River 35 miles north of the existing pumping plants near Tracy, California. From there, two tunnels buried up to 150 feet beneath the surface would carry water south.

Proponents for the project, including Governor Brown's administration, contend that this alternative would ensure the delivery of water supplies even if "climate change and other forces resculpt the interior Delta."²⁸ Further, reducing reliance on the south Delta pumps would greatly reduce the reverse flows caused by the pumping which draws migratory fish off-course. In addition to the beneficial effects of reduced pumping on endangered species, the BDCP includes habitat restoration projects and other measures designed to reverse the Delta's ecological decline.

Critics of the BDCP argue that the Delta cannot be restored by taking more water from it, while supporters of the plan contend that it makes no commitments of increased water deliveries from the Delta and that

Quarry Lakes Regional Recreation Area in Fremont enables the District to recharge its groundwater over hundreds of acres of percolation ponds and lakes.



diversions may even be reduced. Estimates of the amount of water that could be delivered with the proposed 9,000 cubic feet per second intakes range from approximately 4.8 million acre-feet to 5.6 million acre-feet, while annual water diversions from the Delta by the federal and state water projects have averaged 5.3 million acre-feet. According to the Department of Water Resources, “Whether deliveries end up on the high or low end of that range would depend on how protected species fare and whether research conducted over the coming decades shows that higher outflows in the spring and fall help Delta smelt and longfin smelt.”⁹

The BDCP would cost approximately \$25 billion over fifty years. Of this amount, \$14 billion of the construction, operation, and maintenance costs would be paid by ratepayers of the water districts that purchase water from the federal and state water projects, including ACWD. The general public would assume the cost of several billion dollars of habitat restoration projects.¹⁰

Ultimately, the board of directors of each individual water agency must weigh the costs and the benefits of the project and make a decision whether or not to commit to paying for the BDCP. The question before the ACWD Board is: Why should ratepayers assume the cost of such a large investment for a project and plan that may not increase water supplies at all?

According to Director Judy Huang (ACWD Board member since 2002), “Why should ACWD support and bear part of the cost of the conveyance

The District is a key supporter of San Francisco’s efforts to upgrade the regional water system. One project in the current Water System Improvement Program is the Sunol Valley Water Treatment Plant, through which a portion of ACWD’s water supply passes.



proposal? We're waiting for the business case" before making a decision to support the BDCP. While Director Jim Gunther (ACWD Board member since 1995) acknowledges that the endangered species problems in the Delta need to be solved, "will the tunnel really work" to address these concerns? "Reliability is still a big concern," Gunther says. "The Board has directed staff to look at alternatives."¹¹

Such alternatives would be projects that might reduce future reliance on the Delta through regional cooperation with other water agencies or through expanding the District's range of supply sources under its local control. According to General Manager Walt Wadlow, "Bay Area water agencies are starting to see success as more likely if they work together rather than apart."¹²

At the regional level, ACWD has been an active participant in the 2007 development and adoption of a Bay Area Integrated Regional Water Management Plan (Bay Area IWRMP). The goals of the Bay Area IRWMP include: fostering coordination among Bay Area water agencies to help them achieve greater efficiency by pursuing mutually advantageous projects, building public support for project funding, and improving regional competitiveness for project funding.¹³

As a result of the District's participation in the regional IRWMP, ACWD has been awarded over \$2.6 million for projects in the regional plan, ranging from projects related to the Alameda Creek steelhead fishery restoration



effort, groundwater protection, and conservation projects.¹⁴ Additional project funding proposals are also included in the integrated regional plan, with the funding provided by either Proposition 50, approved by the voters in 2002, or Proposition 84, which was passed in November 2006.

In cooperation with the San Francisco Public Utilities Commission and ACWD's fellow member agencies of the Bay Area Water Supply and Conservation Agency, the District has also been a key supporter of San Francisco's efforts to upgrade the Regional Water System to better protect the system against earthquake damage and also to replace aging infrastructure that has been in service since Herbert Hoover was President and talkies replaced silent films.

San Francisco's \$4.6 billion Water System Improvement Program (WSIP) celebrated its ten-year anniversary in 2014. It is the largest infrastructure project ever undertaken by the San Francisco Public Utilities Commission and one of the largest in the nation. Composed of 83 projects to upgrade, repair, and replace aging water infrastructure, it is currently at the 80 percent completion stage, with all projects scheduled for completion by the end of 2018. A bond measure passed by San Francisco voters in 2002 pays for the WSIP, with approximately two-thirds of the cost reimbursed to the City by the twenty-six wholesale customers (twenty-four cities and two private utilities) who purchase Hetch Hetchy water from it.

Because of its location as the point of entry of the San Francisco Hetch Hetchy system pipelines into the Bay Area, the ACWD service area was the site of several critical WSIP projects which will be of great benefit to ACWD's customers and to other San Francisco wholesale customers in Alameda, Santa Clara, and San Mateo counties. These projects included the construction of a new Irvington Tunnel parallel to the existing tunnel in the hills above Fremont in order to provide greater redundancy during an earthquake event. In addition, extensive upgrades were made to two large-diameter pipelines to address seismic vulnerabilities in the vicinity of the Hayward Fault.¹⁵ These pipelines carry water to ACWD as well as customers in Santa Clara and San Mateo counties. Because several ACWD water transmission mains needed to be relocated to accommodate the routing of San Francisco's \$50 million upgrade of its two Bay Division Pipelines, ACWD cooperated with San Francisco in relocating these water mains to accommodate the project, at a total cost of nearly \$2 million.¹⁶

There is a high cost associated with providing increased water supply reliability to protect against a potential natural disaster, as well as replacing infrastructure such as pipelines and other facilities nearing the end of their useful life. In addition to the cost of these pipeline relocations, the wholesale water rate charged by San Francisco and paid by ACWD and

Stop That Running Toilet!

After ACWD became part of the statewide effort to better inform residents about water conservation in 1991, the District created educational programs for area schools. The program has grown and evolved through the years, and today has different approaches for communicating with specific grade levels to engage students in water conservation activities. Today, ACWD's School Education Program reaches more than 27,000 students annually through a number of program offerings:

- Classroom presentations for grades K-12
- Field trips to ACWD's state-of-the-art water treatment plant
- School theater programs for grades K-6
- A Water Conservation Poster and Slogan Contest
- Teacher training workshops
- A mini-grant program
- Internet resources
- Free water education materials and curricula



In 2010 the District's innovative "Stop That Running Toilet" program won the prestigious Clair A. Hill Water Agency Award for Excellence, presented by the Association of California Water Agencies (ACWA). The program started with a school assembly about water conservation, and musical duo ZunZun used fun songs, unusual instruments, and audience participation to educate and inform. After the assemblies, the District distributed Toilet Leak Detection Kits for students to use at home, record their results on a postcard, and mail to ACWD.

During the year of the Excellence Award, the District distributed 15,000 detection kits and received back 600 leaky toilet reports. ACWD followed up and sent back free flapper valves (the most common culprit in leaky toilets) with installation instructions. An estimated 13 million gallons of water was saved as a result of this program.



The musical duo ZunZun uses fun songs and unusual instruments to educate young audiences in the District's service area about water conservation.

the twenty-five other wholesale customers has progressively increased over the life of the WSIP, and is expected by 2015 to more than triple the rate charged for this water when the program began in 2003, based upon the number of additional projects completed.¹⁷ However, the cost of repairing and replacing this infrastructure after a catastrophic event or failure would be much greater.

At the local level, ACWD's Board and staff continued to focus their attention on improving the reliability of the District's water system to ensure that ACWD customers would continue to receive a reliable supply of high quality water in coming years. The expanded Newark Desalination Facility went online in August 2010, increasing its capacity from the original 5 million gallons per day to more than 12 million gallons per day of high-quality water. The state Department of Water Resources recognized the importance of this local project and awarded the District a \$2.8 million grant from Proposition 50 funds to help fund the \$8.15 million project. Including the expansion project, the total cost for design and construction of the desalination plant and related pipelines and facilities amounts to \$42.5 million.

In 2010 the District finished upgrades at the Newark Desalination Facility, increasing its capacity to more than 12 million gallons per day of high-quality water.



Because the additional water it produces is completely under local control, the expanded desalination facility today plays a critical role in guaranteeing a more dependable water supply for the Tri-City area, for non-local sources of supply, such as the State Water Project, are becoming less reliable.¹⁸

Following on the heels of the expanded desalination plant completion, the composition of the Board of Directors changed. Director Glenn Reynolds, who had served on the Board since May 2009, moved outside of the ACWD service area and resigned his position. Vying for the open seat were telecommunications executive and high-tech entrepreneur Paul Sethy and former ACWD employee Frank Price. A long-time Fremont resident, Sethy's father had worked for the District from the 1960s to the 1980s; Sethy had previously run for the Board as a 19-year-old U.C. Berkeley student in 1979. At the November 2010 election, Sethy was elected to replace Glenn Reynolds, and Judy Huang was reelected to serve a third term on the Board.

Almost immediately the Board was confronted with the need for action on several critical projects and policy issues. The first involved funding required for operating expenses and capital projects, including the first phase of the District's Seismic Improvement Program. After taking extensive cost-saving measures recommended by ACWD employees,¹⁹ in February 2011 the District increased water rates 8 percent. This decision was driven by an unusual combination of decreased water demands (which had impacted water agencies throughout the Bay Area over the last two years); continued economic uncertainty as a result of the prolonged recession; increased labor costs, especially related to more rapidly escalating retirement costs, which were affecting public agencies throughout the state; and increased purchased water costs for San Francisco water. This last increase was compounded by the fact the District had to rely on higher than anticipated purchases of the more costly Hetch Hetchy water over the past several years as a result of cutbacks in its State Water Project supply.

Capital Improvement Program Features Retrofitting and Replacement

By June 2011, the ACWD Board had adopted an updated \$315 million, 25-year Capital Improvement Program (CIP). The CIP included funding projections to pay for completion, by 2015, of the Large Diameter Hayward Fault Seismic Retrofit Project as well as a related, longer-term Water Main Replacement Program. These two projects were created to provide greater reliability for the District's customers by improving the performance of the water distribution system during a major earthquake on the Hayward Fault, while also allowing for the planned replacement of pipelines that were nearing the end of their useful life at a lower cost and with less disruption to the public.



Paul Sethy
ACWD Director 2010 –
Sethy first ran for the Board while he was a U.C. Berkeley student. Many years later, after he became a telecommunications executive and high-tech entrepreneur, Sethy was elected to replace Director Glenn Reynolds.

The upgrades came from the District's November 2008 Seismic Vulnerability Assessment which recommended improving the reliability of fifteen large pipelines (ranging from 12 to 48 inches in diameter) which crossed an 8.5-mile section of the Hayward Fault running through Fremont and Union City. The intent was to improve the District's ability to move water across the fault after a major seismic event and also facilitate a quicker restoration of service to customers.

The plan not only called for upgrading the fault crossings with material better able to withstand a major earthquake, it also called for isolation valves to be installed so that potentially damaged sections of these pipelines could be shut down for repair, while manifolds constructed on either side of the pipelines would allow a temporary, large diameter hose to be connected to quickly reestablish water transmission capacity.

Because of its importance to the District's customers, the Board directed that the project be accelerated. The District hired a consultant in February 2012 to prepare preliminary plans to be used to advertise a design-build

District Future Initiative

Established by General Manager Walt Wadlow in 2011, the "Future of ACWD" Initiative set three primary goals: adapting to changes in the District's operating, regulatory, and financial environment; continuing to be a highly respected organization in the community; and being a utility that makes all employees proud.

The District asked staff to submit ideas related to these goals, particularly suggestions about diversifying revenue streams to make the District more financially robust and sustainable, increasing efficiencies through gains in productivity, and reducing costs while maintaining and improving the quality of service to ACWD customers.

Staff members submitted more than 300 ideas in 2011, and approximately 10 percent of the suggestions were implemented. By mid-2014, the initiative had resulted in \$500,000 in combined savings and revenue increases. Over the next ten years, it is anticipated that they will result in a total of \$8 million in savings and revenue increases.²⁰

In addition, a 2012 study of fifteen water and wastewater agencies in both Northern and Southern California compared the total water operating cost to the number of active water connections among the water agencies studied, including ACWD. Water operating cost includes the cost of water, labor, energy, and chemicals used to treat and deliver water to customers, which measures an agency's overall efficiency related to water delivery. At an operating cost of \$308 per connection, ACWD's operating costs were the lowest of the eleven water agencies included in the study, and was well below the average of \$860 per connection.²¹

project, which would expedite project completion. The \$18.5 million project was subsequently awarded to the firm of McGuire and Hester.²²

To pay for the pipeline retrofit project, as well as fund other critical seismic upgrade projects, in November 2011 the Board had authorized the issuance of \$22.3 million in water revenue bonds to be used to fund projects that would deliver immediate value to the community and which could be realistically completed within three years of the issuance. To facilitate the process of issuing the bonds at the best possible interest rate, the District entered into a Joint Powers Authority agreement with the Union Sanitary District. The Board also authorized the refinancing of \$23 million in debt issued in 2003. Taking advantage of historically low interest rates, the refinancing allowed the District to save nearly \$7.2 million in future in repayment costs, representing a present worth value of nearly \$4.0 million.²³

The Water Main Replacement Program grew out of recommendations in a 2009 study that assessed the physical condition and life expectancy of the asbestos-cement (A/C) water mains, which make up over 70 percent of the mains in the District's 850-mile distribution system. Many of the mains were forty to fifty years old. Pipeline samples taken in conjunction with the 2009 study showed that A/C pipe strength was in line with the requirements for newly installed pipe, and that the statistical life expectancy for this pipe averaged seventy-five years (steel water main life expectancy was determined to be in the neighborhood of 100 years).

Staff concluded that significant pipeline failures due to age would start by around 2025 if no action was taken, and recommended development of a comprehensive water main replacement program. Without such a program, by 2040, the District could experience up to 2,000 leaks per year at a cost of \$15 million (in 2011 dollars), and require nearly twenty additional distribution system crews (of three to four employees per crew) to handle the forecast workload. By 2050, this rate would escalate to nearly 5,000 leaks per year, at a cost of \$38 million annually and requiring over forty additional crews. This was obviously an unacceptably high rate of failure, both from cost as well as service disruption and customer inconvenience viewpoints.²⁴



The District is strengthening water mains that cross the Hayward Fault so they can withstand a major earthquake. In areas where earth movement may be significant, the District is installing special valves and flexible tubing (shown above) at the fault crossing to provide ready-made bypasses around sections of pipe that may be damaged.

To reduce potential, future costs as much as possible while ensuring an orderly replacement of aging pipelines, the Board adopted a plan to proactively replace “high risk” pipelines – those determined to be in the greatest danger of failure and/or which would have dramatic consequences if failure were to occur. The plan also allowed “low risk” pipelines to reach the end of their lifespan, during which time some leaks/breaks would occur. The overall goal of the pipeline replacement program was to “ensure that a high level of service to customers is maintained, while keeping future costs manageable, reasonable and predictable.”²⁵

To accomplish this goal, staff assigned a risk score to the pipelines in the distribution system based on two critical factors: the likelihood of failure and the consequence of such failure, including proximity to the Hayward Fault and areas potentially subject to liquefaction or landslide. Replacement then was prioritized, with the pipelines receiving the highest scores to be replaced first, starting at a budgeted level of \$3.5 million and ramping up to an annual budget of \$10 million by Fiscal Year 2019, allowing five to seven miles of water mains to be replaced annually.²⁶ The program extends through the year 2090, at a projected cost of \$400 million. By that time, according to General Manager Walt Wadlow, “It’s a lot like painting the Golden Gate Bridge – by the time the first round of replacement is finished, it’s time to begin again.”²⁷

Taken together, it is expected that the Main Replacement-Seismic Upgrade Program will result in a significant increase in the District’s ability to return customers to normal water service if there is an earthquake much more quickly than if no action were taken. For example, the 2008 seismic vulnerability analysis projected that 70 percent of the District’s customers could be returned to service within fifty days of a major earthquake on the Hayward Fault and 100 percent within 220 days; with the projects scheduled to be completed by the end of 2014, 70 percent of customers will be returned to service within ten to twenty days and 100 percent within forty to one hundred days.²⁸

The Board of Directors accelerated the pace of completing projects critical to meeting the seismic upgrade program’s goals, a move strongly supported by Board President Paul Sethy (ACWD Board member since 2010). A revenue bond that will be dedicated to funding infrastructure rehabilitation projects is pending for 2015. According to Sethy, “Previous generations were involved in building the infrastructure that customers today benefit from, impacting home prices and economic development activities. It’s time for a new generation to step up and rebuild this system for future generations.”²⁹

More Steps Taken to Protect Steelhead Trout Migrations

The Board took a major step forward to better secure the District’s ability to continue its operations in Alameda Creek in March 2011. At that time, the Board of Directors authorized the acceptance of over \$1.4 million in grants for the construction of a fish ladder at Rubber Dam No. 1/BART Weir facility in the creek, as well as a grant for design of fish screens at the Shinn and Kaiser percolation pond diversion facilities. To date, the District has received over \$4 million in grant funding for the design and construction of facilities to allow for the movement of steelhead trout into and out of the Alameda Creek Watershed.

These actions are part of an overall effort to restore this state and federally threatened species in the Central California coastal areas. As importantly, it was also announced on March 10, 2011, that preliminary agreement had been reached with both the state Department of Fish and Game and the federal National Marine Fisheries Service on the bypass flows that will be required to operate these facilities to facilitate fish passage. This agreement will lead to the permits needed for the District to comply with the federal Endangered Species Act for the District’s groundwater recharge operations in Alameda Creek. Upstream diverters from Alameda Creek and its tributaries are also negotiating with state and federal agencies over the flows required to maintain the fishery in the upper watershed.

Although a major milestone, the agreement on bypass flows will still require a federal “Biological Opinion” to be completed before it can be finalized.³⁰ Based on current studies and data analysis, it is not expected that the bypass flows (required when the steelhead migrate upstream to spawn and when the steelhead smolt move downstream to the San Francisco Bay) will have a significant impact on ACWD’s local water supplies. This is because the groundwater basin will essentially fill up or “reset” during normal and wet years (about every three years on average), and the agreement with the National Marine Fisheries Service allows the bypass flows to be reduced during critically dry years.³¹

Conservation, Consumption, and Costs

Even as the District made strides toward making its infrastructure and water supplies more reliable for current customers and future generations, it faced daunting financial challenges to pay for these projects. Compounding this challenge was the fact that since 2007, the District experienced significant declines in overall water consumption. This is attributable to a number of factors, including a continued economic downturn, successive dry years from 2007 to 2009, and the results of a continued emphasis both locally and



Steelhead trout are a threatened species in Northern California. The District is working with a broad coalition of federal, state, and local agencies and groups to restore the steelhead fishery in Alameda Creek.

statewide on efficient water use and conservation. This resulted, by 2010, in a 32 percent drop in per capita water use as compared to 1997.³²

As conservation continues and consumption drops, the District's costs for imported water supplies, especially San Francisco water, have continued to escalate, as have the costs of maintaining and replacing aging infrastructure in the District's water treatment and distribution systems. Over 75 percent of the District's costs are fixed costs, which need to be paid out regardless of the amount of water actually used by customers. According to Director Marty Koller (ACWD Board member since 2000), "A reliable water system costs money to maintain. It's not what everyone wants to hear. ACWD has \$1 billion of infrastructure in the ground. You have to maintain it and replace it."³³

To ensure an adequate revenue stream to fund needed future capital improvements and replacement, the ACWD Board in late 2012 undertook an extensive review of both the District's customer rate structure and development charges. The outcome of this review was to recommend, for calendar year 2013, a zero percent increase in the water commodity rate (the charge to customers based on the amount of water used) but to double the bi-monthly service charge (paid by customers based on meter size) to bring it up to the average of other Bay Area water agencies. By so doing, the costs of the District's seismic improvement and water main replacement programs could be placed onto the fixed service charge, since these programs benefit all customers regardless of how much water is used.³⁵

ACWD Receives National Award for Ongoing Safe Water Practices

In 2014, ACWD's Mission San Jose Water Treatment Plant, which purifies water using ultra-filtration membranes, received an honor achieved by only 76 other utilities across the country – fifteen straight years of achieving the Director's Award of recognition from the Partnership for Safe Water.

The Partnership for Safe Water is a national volunteer initiative developed by the U.S. EPA and other water organizations striving to provide their communities with drinking water quality that surpasses required federal standards. The Director's Award is presented to water systems that have completed a successful review in the Partnership's Self-Review and Peer-Review phases, in which utilities examine the capabilities of their treatment plant operation and administration and then plan for implementing improvements.

"Maintaining Director's Award status for fifteen years demonstrates our philosophy of constant striving to improve water quality," said ACWD General Manager Walt Wadlow. "We are thrilled to receive national recognition for this ongoing commitment."³⁴

Even with this increase, and including a water commodity rate increase passed in 2014, the average bill paid by ACWD customers is still within the bottom third of thirty surrounding Bay Area water agencies, as shown in the chart below.

2014 Cost Comparison* – Average Water Bill

(Based on 23 HCF consumption bimonthly and 5/8 or 3/4 inch meter)

30	City of Pleasanton	73.09
29	City of Santa Clara	87.40
28	City of Sunnyvale	99.18
27	City of San Jose Municipal Water	99.70
26	City of Foster City (Estero)	102.66
25	City of Milpitas	104.14
24	California Water Service Co. – Livermore	104.77
23	ACWD	109.53
22	Marin Municipal Water District	109.83
21	North Marin water District – Novato	110.04
20	East Bay MUD	115.83
19	California Water Service Co. – Los Altos	118.07
18	San Jose Water Company	120.95
17	Contra Costa Water District	131.40
16	City of Livermore	138.61
15	City of Daly City	138.63
14	Dublin San Ramon Service District	139.38
13	City of Hayward	139.80
12	CA Water Service Co. – South SF (Bayshore)	140.11
12	California Water Service Co. – Mid-Peninsula	140.11
11	City of Redwood City	144.62
10	City of East Palo Alto (American Water)	154.23
09	City of Millbrae	155.35
08	San Francisco Water Department (SFPUC)	158.86
07	City of Mountain View	159.12
06	California Water Service Co. – Bear Gulch	160.31
05	North Coast County Water District	169.80
04	Mid-Peninsula Water District	180.27
03	City of Palo Alto	182.28
02	City of San Bruno	199.46
01	City of Burlingame	200.22

**Comparison based on September 2014 data*

In January 2013, the Board of Directors also adopted a resolution, “Governing Water Service and the Extension and Improvement of the Water Distribution System and Facilities” of ACWD, superseding Resolution 81, which had served, with amendments, as the District’s guide for ensuring that growth in the District “pays for itself” since 1955. The new policy streamlined and updated several development-related fees and charges, combining the acreage-based Facilities Acreage Charge into the capacity-based Facilities Connection Charge, which was adjusted to provide the same level of revenues expected from future growth to pay for needed capital projects. The Standard Acreage and Front Foot Charges, staples in the District’s rates for nearly sixty years, were also abolished in favor of a new Facilities Reimbursement Charge, which would also be capacity-based.³⁶

Coping with Drought

As the story closes on ACWD’s first hundred years, three continuous dry years have, according to the Association of California Water Agencies, “pushed California into an historic drought. Reservoirs are at half capacity or less and dropping, groundwater basins and ecosystems are stressed and wildfire risk is extremely high.”⁴⁰ On January 17, 2014, Governor Brown declared a State drought emergency, and by January 31, the Department of Water Resources announced that ACWD, as well as the other State Water Contractors, would receive a 0 percent allocation for the first time in the State Water Project’s fifty-four-year history. In response, the ACWD Board on January 31 issued a call for its customers to voluntarily reduce their water consumption by 20 percent.



In January 2014, the water in many reservoirs, such as Folsom Lake (shown here), was so low that people could walk across large sections of it. On January 31 the governor declared a State drought emergency.

The Integrated Resource Planning Approach Gets Results

As 2014 opened, the Board of Directors received an update on the progress made to-date in implementing the projects and programs originally outlined nearly twenty years earlier in the District's 1995 Integrated Resources Plan (IRP). The IRP process carefully analyzed the costs and benefits of dozens of approaches to match water supply to demand, including conservation, improvements in efficiency, operational changes, and more. General Manager Walt Wadlow notes that the 1995 plan clearly set forth what the District would need to do in the future: "Develop local water supplies, conserve water, use existing supplies as efficiently as possible, and find a way to store water for dry years. It also set other objectives, including containing costs and improving water quality."³⁷

Even though the District had basically lost access to its largest imported supply source, the 20 percent reduction was expected to bring water supply and demands into balance as a result of the District's diverse water supply portfolio, including local groundwater, desalinated brackish groundwater, and San Francisco water supplies. In anticipation of another drought year, ACWD staff was also able to carry over a portion of its 2013 State Water Project allocation for use in 2014.

Due to the severity of the drought, in March 2014 the Board of Directors adopted a water shortage emergency ordinance that included various water use restrictions and prohibitions, and began discussing ways to make up the anticipated shortfall in revenues caused by reduced water demand, as well as pay for the increased costs for water supply and conservation programs initiated in response to the drought.

By April 2014 Governor Brown issued an Executive Order to redouble drought actions throughout the state, and in July, the State Water Resources Control Board adopted emergency regulations for statewide urban water conservation that closely paralleled the restrictions and prohibitions already adopted by the ACWD Board in March. Overall, ACWD customers have responded well to the calls for conservation, meeting the 20 percent demand reduction figure, or close to it, even during the hot summer months.

The Board held a public hearing in July to discuss approaches needed to make up for the revenue losses resulting from the reduced water demands. By reducing operating expenses, deferring capital projects, and utilizing a \$10 million emergency/rate stabilization reserve to make up part of the revenue shortfall, the District was able to substantially close the gap between revenues and expenses, but not completely. To make up the difference, the Board of Directors adopted a temporary "drought surcharge" to fill the gap between lower than expected revenues and increased costs, including paying for the purchase of much more expensive Hetch Hetchy water as a substitute for the lack of cheaper Delta water deliveries. The recommended drought surcharge rates went into effect in late July of 2014.⁴¹

The current drought will no doubt rewrite the history of modern droughts in California. The next few years will be challenging ones, but ACWD's Board, staff, and customers have shown that they will be able to rise to meet this challenge just as they have met past ones.

Today, ACWD and its customers have met or exceeded almost all of the goals originally set forth in 1995. Major accomplishments:

- Per capita water demand has dropped by more than 30 percent.
- Investment in IRP strategies, including brackish groundwater desalination and water conservation, have enabled the District to save millions more annually in operating expenses as well as avoid building capital projects that would have cost tens of millions of dollars.
- The District has been able to dramatically improve its overall water supply reliability, even while water deliveries from the State Water Project Delta supplies have grown more uncertain.³⁸

ACWD General Manager Walt Wadlow checks the progress of installation of a new diversion pipeline. The project will enhance water supply in the District's service area.

The IRP Targets chart, taken from the 2014 IRP update, shows the progress made from 1995 to 2014 in meeting the plan's original goals regarding water reliability, water quality, environmental stewardship, cost, minimizing risk, and protecting against natural or manmade disasters.



CATEGORY	1995 IRP TARGETS
Demand Management	Implement cost-effective conservation measures with a focus on reducing outdoor water use Targets: 2,900 acre-feet per year savings by 2020 Progress: Demand reduced permanently by 7.6 million gallons per day (mgd) (8,500 acre-feet per year)
Desalination	Install equipment to desalinate and use the salty groundwater that is pumped by ACWD's Aquifer Reclamation Program Targets: 3 mgd by 2000, 8 mgd by 2010 Progress: 5 mgd operational in 2003; 10 mgd operational in 2010
Off-site Water Storage or Banking	Find a new way to store water for use in dry years Targets: 65,000 acre-feet by 2000, increasing to 140,000 acre-feet by 2030 Progress: 150,000 acre-feet secured in the Semitropic Groundwater Bank
Groundwater Management	Keep the local groundwater table at sustainable levels by recharging the aquifer and limiting the region's dependence on well water Target: Prevent water table from dropping lower than 5 feet below sea level Progress: Groundwater table maintained above sea level; Quarry Lakes Groundwater Recharge System improved for more efficient operation
Treatment Plant Upgrades	Ensure that water treatment plant capacity meets needs Target: Increase capacity of Treatment Plant 2 from 17 mgd to 21 mgd by 2030 Progress: Treatment Plant 2 capacity increased to 23 mgd
Recycled Water	Produce new water for landscaping and industrial use by treating and reusing wastewater produced in the District Target: 1,600 acre-feet by 2020, increasing to 2,600 acre-feet by 2030 Progress: 1.8 miles of non-potable water mains installed
Water Quality	Avoid large fluctuations in water hardness Target: monthly average hardness of 150 milligrams per liter (mg/L) for water produced at Blending Facility Progress: Average water hardness meeting target
Environment	Avoid or mitigate environmental impacts Target: Improve conditions for migrating fish Progress: Low rubber dam removed and fish passage installed; fish screens installed at three diversion sites
Cost	Resource choices influence the District's capital and operating costs Target: Minimize resource costs; maintain low average customer bills Progress: Tens of millions in capital expenses avoided; annual operating expenses reduced by \$4.3 million (2012) due to reduced purchases of SFPUC water
Risk	Improve water supply reliability by reducing dependence on water imported from the Sacramento-San Joaquin Delta Target: Develop water storage and desalination to increase local control Progress: Water cutbacks now limited to 10 percent even during a long drought; 10 percent cutback expected only once in 30 years
Preparing for Crisis	<i>(Added in 2005):</i> Develop plan for major earthquake, loss of State Water Project supplies, or other serious disruption Target: Ensure that ACWD facilities and staff are prepared Progress: District's ability to provide safe water after a major earthquake increased by new water sources and seismic upgrades

The Culmination of One Hundred Years of Effort

However, the plan itself is really the culmination of one hundred years of effort by ACWD staff and Board members to secure and develop a reliable supply of water for a growing population and local economy, first for rural Washington Township and then for the suburban Tri-City area. According to Director John Weed (ACWD Board member since 1995), “The culture of ACWD has had a sense of service embedded in it – consistency and reliability are hallmarks, with a high level of professionalism.”³⁹

In that sense, each new generation of Board members and staff stands on the shoulders of the preceding one, adapting to changing circumstances, and meeting new challenges with the same grit and determination that the District’s founders like Christian Runckel and the Washington Township Water Committee, as well as the original Board of Directors, demonstrated in their fight to secure local control of a vital resource for the benefit of future generations. That, ultimately, is a heritage, and a history, to cherish, to be proud of, and to sustain through the next century of service to the community and beyond.

Chapter 9 Endnotes

¹ Email communication with Thomas Niesar, ACWD Senior Water Resources Engineer, May 6, 2014.

² Mark Cowin, “The Bay Delta Conservation Plan: An Overview and Local Perspectives,” *Western City Magazine*, July 2013, (League of California Cities, Sacramento), at www.westerncity.com, p. 4.

³ ACWD *Aqueduct*, (Winter 2010).

⁴ Minutes, ACWD Board of Directors, Calendar Year 2010, March 11, 2010, pp. 9-12.

⁵ “Bond not best solution for California’s water future,” *San Francisco Chronicle*, April 4, 2014.

⁶ ACWD staff report on Proposition 1, Item 5.7, Action Calendar Items, September 11, 2014, p. 7; Minutes, ACWD Board of Directors, Calendar Year 2014, September 11, 2014, pp. 8-9.

⁷ Cowin, p. 3.

⁸ *Ibid.*, p. 4.

⁹ *Ibid.*

¹⁰ *Ibid.*, p. 5.

¹¹ Interview with ACWD Directors Judy Huang and Jim Gunther and General Manager Walt Wadlow, June 4, 2014.

¹² *Ibid.*

¹³ Minutes, ACWD Board of Directors, Calendar Year 2014, April 3, 2014, pp. 9-10.

¹⁴ *Ibid.*, p. 10.

¹⁵ WSIP Projects section at www.sfwater.org.

¹⁶ Minutes, ACWD Board of Directors, Calendar Year 2010, January 14, 2010, p. 6.

¹⁷ Email communication with ACWD Water Supply Manager Doug Chun, October 31, 2014. Note: The wholesale customer rate in FY 2003-04 was \$1.10/ccf and the wholesale customer rate for FY 2015-16 is projected to be \$3.45/ccf.

¹⁸ “Newly Expanded Desalination Facility Producing Water,” ACWD *Aqueduct*, Autumn 2010; Minutes, ACWD Board of Directors, Calendar Year 2010, p. 13.

¹⁹ Minutes, ACWD Board of Directors, Calendar Year 2011, February 11, 2011, pp. 5-8.

²⁰ Communication from Doug Chun, Special Assistant to ACWD Operations Manager, September 5, 2014.

²¹ Eastern Municipal Water District, “California Water Agency Comparative Benchmarking Analysis – Agency Assessment,” presentation of December 21, 2012, slide 28.

²² Minutes, ACWD Board of Directors, Calendar Year 2012, February 9, 2012, p. 6; Calendar Year 2013, February 13, 2013, p. 7; ACWD *Aqueduct* publication, “Meet MRSUP,” Autumn 2013.

²³ Minutes, ACWD Board of Directors, Calendar Year 2011, September 9, 2011, p. 7; and November 10, 2011, pp. 10-11. Stone & Youngberg, *Sources and Uses of Funds, Alameda County Water District, 2012 Revenue Bonds*, (San Francisco, January 2012), pp. 1 and 24; email communication from Michael Yee, ACWD Budget and Financial Analysis Manager, October 20, 2014.

²⁴ ACWD Board Workshop Presentation, “Water Main Replacement Program,” September 22, 2011.

²⁵ Minutes, ACWD Board of Directors, Calendar Year 2011, September 22, 2011, p. 1.

²⁶ *Ibid.*; email communication from Toni Lyons, ACWD Supervising Engineer, July 23, 2014.

²⁷ ACWD *Aqueduct*, August 2013.

²⁸ ACWD Board Presentation, “Seismic Improvement and Water Main Replacement Programs, December 13, 2012.

²⁹ Interview with ACWD Director Paul Sethy, July 30, 2014.

³⁰ Minutes, ACWD Board of Directors, March 10, 2011, pp. 6-7.

³¹ Email communication from Robert Shaver, ACWD Engineering Manager, August 12, 2014; Alameda County Water District and Alameda County Flood Control and Water Conservation District, “Joint Lower Alameda Creek Fish Passage Improvements, Initial Study and CEQA Checklist,” (prepared by Hanson Environmental, Walnut Creek, CA), March 2013, pp. 259, 47 and 32.

³² ACWD 2010-2015 Urban Water Management Plan, (Fremont, CA, 2011), p. 2-4.

³³ Interview with ACWD Director Marty Koller, June 30, 2014.

³⁴ ACWD *Aqueduct*, Summer/Autumn, 2011; communication from Doug Chun, Special Assistant to ACWD Operations Manager, September 5, 2014.

³⁵ Minutes, ACWD Board of Directors, Calendar Year 2012, November 8, 2012, pp. 6-10.

³⁶ Minutes, ACWD Board of Directors, Calendar Year 2012, November 8, 2012, pp. 6-10; and Calendar Year 2013, January 9, 2013, p. 10.

³⁷ ACWD, *Reliability by Design: Integrated Resources Planning at the Alameda County Water District*, (Fremont, CA, 2014), p. 2.

³⁸ *Ibid.*

³⁹ Interview with ACWD Director John Weed, July 30, 2014.

⁴⁰ Association of California Water Agencies, “2014 Drought Watch,” at www.acwa.com/content/2014-drought-watch.

⁴¹ ACWD Staff Presentation, Drought Surcharges Public Hearing, July 17, 2014.



Afterword

From the start, this project has had a clear and straightforward goal: to produce a well-documented institutional history of the Alameda County Water District's first one hundred years. By so doing, I hope that I have been able to tell a story that will educate and inform current and future Board members, employees, and the community at large about the vital role the District has played in the development of Washington Township and in the subsequent growth of the cities of Fremont, Newark, and Union City. Shakespeare's observation that "What's past is prologue" (*The Tempest*, Act 2, Scene 2) is also very germane to this effort – it is difficult to manage the future without a knowledge and appreciation of the past, so that we can use and apply the lessons learned from both our successes as well as our mistakes.

Because every organization develops a particular culture, it is also helpful to look to the past to determine the shape and context of that culture. Looking back over one hundred years, three characteristics stand out to me, which have been embedded in the District's "historical DNA" since the very beginning of the District's existence. As such, they have informed and guided the District's policy priorities, actions, and activities as it has grown and developed over the years, even as the community it serves has grown and developed. Simply stated, they are: the effective exercise of local control, the vigilant stewardship of both financial and natural resources, and the use of innovative planning tools and technology to secure and maintain a reliable supply of high-quality water for the area's residents and businesses.

To these characteristics, I would add a fourth, which has been implicit throughout the ACWD story as it has unfolded over the last one hundred years: the "human factor" in the cultural equation. ACWD has had the good fortune to have benefitted from the service of Board members who have ably represented the community that elected them – with both commitment and vision. The District has also benefitted from several generations of employees who have always displayed a strong commitment of service to the community and a high level of competence and skill in their respective roles and job responsibilities. Because this is an institutional history, space did not permit an adequate discussion of the vital part these employees have played in providing a high-quality, reliable supply of water on a 24/7 basis, 365 days per year, to the Tri-City community. Without all of them – policymakers, the staff who implement these policies, and the employees who do the necessary and important work to ensure that a high-quality product is produced and delivered at a fair and reasonable cost – the ACWD story would be a much different one. And it is to them – the Board members and employees of ACWD over the past 100 years – that this work is dedicated. I am proud to have been one of you.

–Paul A. Piraino

November, 2014

Acknowledgements

The development of the “ACWD Story” was truly a team effort. Thanks to the ACWD Board of Directors and General Manager Walt Wadlow for their unwavering support for this project.

The following ACWD staff were involved in reviewing various chapter and section drafts to ensure accuracy: Bob Shaver, Toni Lyons, Steven Inn, Michelle Myers, Mike Yee, Eric Cartwright, Frank Jahn, Steve Peterson, Doug Chun, Laura Hidas, and Steve Dennis. Gina Markou and Brenda Mercado were also very helpful (and patient) searching for my requests for old records and reports among District files and for keeping up with numerous chapter drafts and revisions. Sharene Gonzales was also helpful in working with local historical societies searching for photos and maps, as well as coordinating a massive search for historical photos among ACWD’s records, and Stephanie Penn supplemented the District’s historical photos with current images of Alameda Creek and our facilities.

Janet Cronbach of the Marx Local History Collection at the Fremont Main Library was especially helpful in locating news clipping files on the District, as well as opening up the Gladys Williamson and Al Redd document collections. Patricia Schaffarczyk at the Museum of Local History in Fremont was also very helpful in researching and providing photos and other historical artifacts for inclusion in the book.

Former Board members Joe Damas, Frank Borghi, Clark Redeker, and Phil Utic were interviewed and provided helpful background and insights, as did former general managers Roy Coverdale and Jim Beard.

A special thank you is due to former Board member Clark Redeker for his keen interest in this project, and who passed away just before the book’s completion. Clark very graciously turned over to me over fifty years of his personal ACWD records, including news clippings, reports, and studies that proved to be invaluable.

A special thanks as well to my editor Penny Hill and to the staff of the Water Education Foundation for their excellent work with respect to the design, photography, and content of this effort, and to my wife Carolyn for her support and encouragement.

Photo Credits

Photographs of ACWD Directors and facilities in this book were compiled from ACWD's historical files (indicated below as ACWD). Additional images were provided courtesy of the Museum of Local History in Fremont (MLH), The Water Supply of San Francisco published by Spring Valley Water Company in 1911 (SVWC), the California Department of Water Resources (DWR), and the following:

Cover: Alameda Creek at dusk near Coyote Hills, ACWD;
East Bay Hills, MLH.

Chapter 1

- Alameda County township map, Thompson & West, 1878, Cartography Associates, David Rumsey Collection.
- 2: Combine harvesting in Washington Township, MLH.
- 3: San Mateo (Crystal Springs) Dam, 1888; Division of Engineering and Industry, National Museum of American History, Library of Congress.
- 4: Spring Valley Water Company crew, MLH.
- 5: Carleton Watkins, photographer (American, 1829-1916), *City Front from Rincon Hill in 1860*, 1860 - 1862, The J. Paul Getty Museum, Los Angeles.
- 6: *The Washington Press*, Sept. 9, 1910.
- 7: Christian Runckel, *Western Journal of Education* Volume 3, 1898, p. 8.
- 8: San Francisco Earthquake, United States Geological Survey.
- 9: San Francisco three years after the earthquake, April 1909, Library of Congress.
- 10: Centerville in 1911, ACWD.
- 11: Niles Dam, SVWC.
- 12: Flood in 1913, MLH.
- 14: Water Wagon in Niles, MLH.
- 16: Hetch Hetchy Valley, U.S. Geological Survey.
- 21: *The Washington Press*, March 14, 1913.
- 23: Sunol Water Temple, SVWC.
- 24: *The Washington Press*, October 25, 1913.
- 25: *General Laws of California: As Amended and In Force at the Close of the Fortieth Session of the Legislature, 1913*.
- 26: The South Gardens, Panama Pacific International Exposition, 1915, permission: CardCow.com.
- 27: John E. Raker, Library of Congress.
- 29: *The Washington Press*, January 3, 1914

Chapter 2

- 34: Spring Valley holdings, 1911, in Washington Township, SVWC.
- 36: Calaveras Creek, SVWC.
- 38: Sunol Dam, SVWC.
- 40: Leal Tank House, Bernie Leal.
- 41: Artesian well in Alvarado, *Oakland: Athens of the Pacific, Facts and Figures of Alameda County*, 1896.
- 42: Calaveras Dam failure, DWR, Division of Safety of Dams.
- 44: East Bay Water Company, East Bay Municipal Utility District.
- 45: Bell Quarry, MLH.
- 46: Local packing labels and Mayhew Farm, MLH.
- 48: Transporting pipe for East Bay Water Company, East Bay Municipal Utility District.
- 50: Cyril Williams' log books, ACWD: Stephanie Penn.

- 53: Fremont in 1925, ACWD.
- 55: Construction of Hetch Hetchy system, San Francisco Public Utilities Commission Digital Collection, San Francisco History Center, San Francisco Public Library.
- 56: Mokelumne pipeline, East Bay Municipal Utilities District.
- 58: Mayor James Rolph, Jr., 1930, San Francisco Public Utilities Commission Digital Collection, San Francisco History Center, San Francisco Public Library.

Chapter 3

- 60: Alameda Creek, ACWD.
- 62: Will and Donald Patterson, 1907, Gift of the Patterson Family, The Society of California Pioneers.
- 63: Alvarado Pumping Station, MLH.
- 64: Gallegos receipt, MLH.
- 66: Migrants in orchards, MLH.
- 67: 1930s era farming, ACWD.
- 68: Crystal Springs Dam, San Francisco Public Utilities Commission Digital Collection, San Francisco History Center, San Francisco Public Library.
- 71: Moccasin Powerhouse, San Francisco Public Utilities Commission.
- 72: Monitoring wells, ACWD: Stephanie Penn.
- 74: San Antonio Reservoir site, SVWC.
- 79: Washington Township in World War II, MLH.
- 81: Bay Model, Water Education Foundation.
- 82: John Reber, courtesy Water Education Foundation.
- 84: Shinn Gravel Works, MLH.
- 86: Moccasin Penstock, San Francisco Public Utilities Commission.
- 88: Calaveras Dam, 1925, San Francisco Public Utilities Commission.

Chapter 4

- 92: Transmission line, ACWD.
- 93: Matt Whitfield, ACWD.
- 94: Sycamore Farm and subdivision, MLH.
- 95: Conway & Culligan Surrender, *Township Register*, August 5, 1954.
- 97: Installing a water meter, ACWD.
- 98: Water Men Row, *Township Register*, August 5, 1954.
- 100: Niles Flood, Bay Area Aerial Survey, ACWD.
- 102: Middlefield Reservoir, ACWD.
- 103: Precinct map, ACWD.
- 104: Business office, ACWD.
- 106: Campaign flyer, MLH.
- 107: Trenching, ACWD.
- 108: Pits G and B, ACWD.
- 111: Oroville Dam, DWR.
- 112: Warm Springs hydrant, MLH.

- 114: Lake Del Valle site, ACWD.
- 116: Bulletin No. 3, Water Education Foundation.
- 117: Del Valle Reservoir, 1971, ACWD.
- 118: Governor Steals Show, *The News Register*, Nov. 26, 1958.
- 119: Livermore Valley Canal/SBA, ACWD.
- 121: Brushy Peak Pipeline/SBA, ACWD.
- 123: South Bay Aqueduct system, ACWD.
- 125: Signing SBA agreement, ACWD.
- 126: Matt Whitfield and John Phil at Shinn pit, ACWD.
- 127: Digging trenches, ACWD.

Chapter 5

- 130: Bringing water to Union City, ACWD.
- 133: Fiftieth anniversary, ACWD.
- 135: South Bay Aqueduct photos, ACWD and DWR.
- 137: Digging a trench in a street, ACWD.
- 138: Flyer, Maurice Marks Center for Local and California History, Fremont Library.
- 142: Celebrating the CUC buyout, ACWD.
- 144: Shinn-Kaiser pit, ACWD.
- 146: Pumping water out of a pit, ACWD.
- 148: Peralta-Tyson water softening plant, ACWD.
- 149: Peralta-Tyson water softening plant, ACWD.
- 150: Vallecitos Channel and Turnout, ACWD.
- 151: General Motors plant, ACWD.
- 152: District office on Fremont Street, ACWD.
- 154: Aerial photo of Glenmoor area, ACWD.
- 155: Dedication of Alameda Reservoir, MLH.
- 157: Mission San Jose water treatment plant, ACWD: Frank Jahn.
- 158: Widening Alameda Creek, ACWD.
- 159: Repairing a dike, ACWD.
- 160: Aerial photo of flood control channel, 1972, ACWD.
- 162: Foamy water, Livermore discharge, ACWD.
- 165: Dick Rynda, ACWD.
- 168: Drilling rig and old truck, ACWD.
- 171: Folsom Dam, Bureau of Reclamation.
- 173: Parched Ground, ACWD: Stephanie Penn.
- 174: Matt Whitfield retires, ACWD.

Chapter 6

- 178: Sacramento-San Joaquin Delta, DWR.
- 180: Homes on Stanford Ave., MLH.
- 181: Seventy-fifth anniversary, ACWD.
- 183: Sacramento-San Joaquin Delta, DWR.
- 187: Shinn pit diversion project, ACWD.
- 188: Rubber Dam No. 3, ACWD: Frank Jahn.
- 189: Well testing and drilling, ACWD.
- 191: Snowmelt in the Sierra Nevada, East Bay Municipal Utility District.
- 192: Harry Brumbaugh and architectural rendering, ACWD.
- 193: Grimmer Blvd. headquarters, ACWD.
- 194: Blending facility construction, ACWD.
- 195: Construction at Whitfield Reservoir, ACWD.
- 196: Control panel, ACWD.
- 198: Bernardo Water Softening Plant dedication, ACWD.
- 199: Blending facility valve turning ceremony, ACWD.
- 200: Construction of Water Treatment Plant No. 2, ACWD.
- 201: Water Treatment Plant No. 22, ACWD.
- 203: Drilling a well, ACWD.
- 204: Alameda Creek along Route 84, ACWD.
- 205: Accident in Niles Canyon, ACWD.
- 206: Hazardous material prohibited, ACWD.
- 207: Groundbreaking ceremony, ACWD.
- 211: Xeriscape garden, ACWD.
- 213: Water conservation collage, ACWD.
- 214: Snow pack in the Sierra, East Bay Municipal Utility District.

- 217: Replacing a pipe, ACWD.

Chapter 7

- 222: Alameda Creek, ACWD.
- 225: The Delta, DWR.
- 227: Delta Smelt, DWR.
- 228: Bruce Babbitt and Pete Wilson, Water Education Foundation.
- 232: Avalon Heights tank construction, ACWD.
- 234: Water Treatment Plant 2 hydroelectric turbines, ACWD.
- 236: Percolation pond, ACWD: Stephanie Penn.
- 238: Alameda Creek, ACWD: Stephanie Penn.
- 239: Water Quality Laboratory, ACWD: Stephanie Penn.
- 241: Water Quality Laboratory, ACWD: Stephanie Penn.
- 243: Union Sanitary District treatment plant, Union Sanitary District.
- 244: Loma Prieta earthquake damage, San Francisco, U.S. Geological Survey.
- 245: Water Treatment Plant No. 2 dedication, ACWD.
- 248: Undeveloped quarry pits, ACWD.

Chapter 8

- 250: Larnier fish passage, ACWD
- 252: Infographic, Semitropic Groundwater Banking Program and Curtis Leipold.
- 254: Kaiser Lonestar Quarry, MLH.
- 255: Earthquake faults map, Curtis Leipold.
- 256: Water quality laboratory, ACWD: Stephanie Penn.
- 257: Construction at Mission San Jose Water Treatment Plant, ACWD.
- 258: Deep water outfall, East Bay Dischargers Authority.
- 260: Alameda Creek Watershed, ACWD: Stephanie Penn.
- 261: Steelhead rescue, Alameda Creek Alliance.
- 262: Stocking Alameda Creek with trout, ACWD.
- 265: Releasing rainbow trout, ACWD.
- 268: Sacramento-San Joaquin Delta, DWR.
- 269: Grading during quarry pits rehabilitation, ACWD.
- 270: Quagga and Zebra mussels, DWR.
- 271: Joyland Park, ACWD.
- 272: Fish Screen, ACWD.
- 273: Larnier fish passage facility, ACWD.
- 276: Newark Desalination Facility, ACWD: Frank Jahn.
- 278: California Aqueduct, DWR.
- 281: Alameda Creek watershed, ACWD.
- 282: Calaveras Dam, San Francisco Water, Power and Sewer.
- 285: Mission San Jose Water Treatment Plant, ACWD: Frank Jahn.
- 289: Katrina crew, ACWD.
- 290: Katrina crew, ACWD.
- 292: Replacing old water mains, ACWD.
- 296: Mayhew Reservoir, ACWD.
- 300: Former directors, ACWD.
- 301: South Bay Aqueduct, DWR.

Chapter 9

- 304: Alameda Creek, ACWD: Stephanie Penn.
- 307: Quarry Lakes Regional Recreation Area, ACWD.
- 308: Sunol Valley Water Treatment Plant, San Francisco Water, Power and Sewer.
- 311: ZunZun, ACWD: Frank Jahn.
- 312: Newark Desalination Facility, ACWD.
- 315: Seismic upgrade pipes, ACWD.
- 317: Steelhead trout illustration, courtesy ACWD.
- 320: Folsom Lake, Adam Flint Taylor.
- 323: New diversion pipeline, DWR.
- 325: Alameda Creek, ACWD.
- Back Cover: ACWD.

About the Author



Paul Piraino

Paul A. Piraino served as general manager of the Alameda County Water District from 1997 to 2009, and retired after twenty-seven years with the District. A graduate of Kenyon College with a master's degree in public administration from the City University of Seattle, Piraino had served in a range of human resources and managerial positions with the State of California, the County of Alameda, and the City of Daly City before coming to ACWD in 1982.

During his term as general manager, the District built the Newark Desalination Facility, purchased 150,000 acre-feet of off-site water storage, and implemented several other programs and projects laid out in the District's Integrated Resources Plan. Other challenges the District faced in those years included replacing aging infrastructure, protecting the waters of Alameda Creek and the Niles Cone Groundwater Basin from contamination, and meeting increasingly stringent water quality regulations.

Under Piraino as general manager, the District completed the Quarry Lakes joint water supply and recreation project, pursued restoration of the steelhead fishery in Alameda Creek, and worked with other water agencies in the Bay Area to support upgrades to San Francisco's regional water system.

Among his accomplishments as general manager, Piraino is especially proud of leaving the District on a sound financial footing, as evidenced by its AAA bond rating, and of having the opportunity to work with a highly professional, efficient, and customer-oriented staff.

Long fascinated by the District's history and its impact on the development of the Tri-City area, Piraino greatly appreciates the opportunity to tell the District's story to commemorate its Centennial Year.

