

1992 Essay Contest

California Pioneers

Hon. Mention - \$ 25.00

Ditches to Reservoirs:
San Jose and Its Water (1777-present)

*An Essay
Presented to
the California Pioneers
of Santa Clara County*

by
Michael Stoner
1620 Sweetbriar Drive
San Jose, CA, 95125
(408) 265-6497

Table of Contents

Introduction	page 1
The Spanish Settlers	page 2
The Americans	page 3
The First Conservation Efforts	page 6
The "Artesian Fever" Ends	page 7
The San Jose Water Company	page 9
The Turn Of The Century	page 13
The Santa Clara Valley Water District	page 15
The Elzman Era	page 17
Kendall & Weinhart	page 19
Recent Problems	page 20
Conclusion	page 21
Notes	page 22
Bibliography	page 23

Introduction

For the past five years, San Jose as well as the rest of California has been experiencing a severe drought. This drought has produced numerous local news stories and has even been featured in the national news magazines. For years we had been ignorant of the senseless wasting of one of our most precious resources--water. We had taken our water supply for granted. After all, we had access to all the water we needed just by opening the tap. This paper will explain how the first settlers of San Jose got their water, and then trace the development of the water supply up to the present time.

The Spanish Settlers

The long, troubled road that is the story of San Jose's water problems began in the year 1777, when Felipe de Neve, the new Spanish governor of California, made his way north from Mexico. He and his men made a careful survey of the land in the South Bay, and in November of 1777, they decided to build a city on the banks of the Guadalupe River.

Soon, shelters made from grass and mud were built. These were called *pobladores*. Next, town lots called *solars*, and small garden plots (*suertes*), were provided for the *pobladores*. These plots were large enough to grow three bushels of corn apiece.

Now the young city underwent its first public works project in the form of a small dam across the Guadalupe River. The dam was built by the citizens of San Jose near the later location of Fox Avenue. Water was brought to the town via ditches called *acequia*. The people "bucketed water to their homes and used it raw."¹ By modern standards, this would have been considered unacceptable because the water from the ditches was filthy. Horses and cattle waded in it regularly. Small children and their dogs also played in the water.

In 1797, the town moved a mile and a quarter to the south. The *acequia* were connected to a pond on the Canoas Creek (near Virginia Street). A few shallow wells were also dug to supplement the water from the ditches. Due to the filth of their water, the early residents of San Jose experienced many cholera epidemics. However, it was not until the arrival of the Americans in the 1800's that this problem was finally dealt with.

The Americans

In the early nineteenth century, Americans started coming to San Jose. At first, their numbers were small, but the new American population grew at a much faster rate than the Spanish ever had. The *acequia* system soon became inadequate. Instead of finding a new water source, the existing system was expanded. A new *acequia* was built along Market Street.

Despite the fact that the ownership of the city had changed hands, the cholera epidemics persisted. In fact, with the rise in population they became worse. During the year of 1850, San Jose's Common Council passed some of its first health ordinances to help keep the disease under control. Among them was one that forbade the throwing of "dead animals and other filth into the *acequia*."²

Within a short time, even the new *acequia* were no longer adequate. The Common Council made preparations to install an underground water piping system. However, in early January of 1854, the Merritt Brothers struck artesian water on Fifth Street. This was the first artesian well, a well in which water gushes into the air due to underground pressure. It was drilled with a six-inch auger and water was struck at a depth of only eighty feet.³

Later on in the same month, J. B. Shepherd started another gusher. Then in February, T. Meyers also struck artesian water. A water-rush began. In the following November, San Jose Telegraph reporter Francis B. Murdoch wrote:

"Artesian wells are becoming so numerous that we can't keep track of them. And if the waters flowing from them were united into one stream, a sufficient supply could be obtained for the wants of a canal between San Jose and Alviso."⁴

With so many new wells being dug, the Council put aside its plan for underground pipes. The artesian water was fresh and as clear as glass. People began drinking this water with alacrity, so the City no longer had to worry about the cholera problems either.

In spite of their numerous benefits, some of the wells also had disastrous effects. One of these was dug by William Campbell. He struck a gusher that thoroughly flooded the nearby streets. It was drained by a ditch that was later called Fountain Alley. By far the worst catastrophe was caused by the well that Major G. A. Dabney dug on San Fernando Street in August of 1864. He struck water at a depth of sixty feet, and then the flow became uncontrollable. Water flooded nearby streets with a stream that measured four feet wide and six inches deep.⁵ Angered by the flooding, the Common Council ordered Dabney to pay a fifty dollar fine every day that his well flowed uncontrolled. This was a considerable punishment, so Dabney hired one hundred workers at high wages to cap the well. The workers brought two redwood logs down from the mountains and tried to plug the well with them. The well flowed for six weeks, finally coming under control when new nearby wells reduced the pressure. The records do not show that Dabney ever paid the fine.

San Jose's residents were soon obsessed with the artesian wells which created a booming business for some. For example, this ad was run in the Mercury News by Hickox and Barker, a local well-drilling company:

"Now is the time to get a good artesian well at the least expense--secure the advantages of this inestimable blessing, if you would increase the productiveness of your lands and provide your stock with good and healthful water." ⁶

New residents were also inclined to rent properties with artesian wells. This ad was also published in the Mercury News:

"FOR RENT

A dwelling house containing six rooms--outhouses and sheds...Having two artesian wells of excellent water, one of them quite near the door."⁷

Well-drilling also developed into quite a science. Well-drilling firms competed for new buyers. Hickox and Barker advertised that they used "double iron tubing," which was considered superior to the other types of pipe. Nevertheless, a local fruit grower, Levi A. Gould, ran ads for his double pipes. He stated that he could provide "any quantity of redwood or pine aqueduct pipes on the the shortest notice."⁸ The underground water pressure was used to push the water as high into the air as possible. The highest one measured sixteen feet. When the water was raised, it could be piped to more distant locations by the force of gravity.

The name "Artesian" was so popular toward the end of the nineteenth century that businesses were named after it. A flour miller named Ransom G. Moody called his shop the Artesian Mill. In fact, it was powered by a well. Many other downtown businesses also adopted the name in order to catch the public's eye.

The First Conservation Efforts

Years after the discovery of the first artesian wells, the source of their water was finally discovered. The Artesians were caused by the closing or blockage of underground streams near their outlets in the South San Francisco Bay. This formed a closed tube with the water searching for an outlet. When wells were dug, outlets were created. The pressure of the water searching for escape gave the gushers their force. As more holes were bored into the underground streams, the pressure of the wells was eventually depleted. Millions of gallons of water had been flowing to waste.

In May of 1862, the County Board of Supervisors decided to put an end to this waste. They passed an ordinance that imposed a five hundred dollar fine on "any person who shall suffer or permit the water thereof to flow to waste."⁹ William A. Z. Edwards was appointed as the County's Artesian Well Inspector. He travelled through the valley, fining people who either left their wells unattended or wasted water. However, he was not very effective because he was only one man and he had a tremendous area to cover.

Soon, more artesian wells were found in Monterey. These gradually reduced the flow of the San Jose artesians, causing people to become concerned. The last artesian well was dug in 1916 by Allan M. Standish in Alviso. It was 235 feet deep and spewed water twenty feet into the air, making it one of the highest. The stream of water was so powerful that it threw the drilling apparatus from the hole.¹⁰

The “Artesian Fever” Ends

In the more rural parts of the Santa Clara Valley, farmers were forced to find alternate methods of obtaining water. Although they were infected with the “artesian fever” of the 1850s and 1860s, they recovered much sooner than the city dwellers. Before the artesian wells were discovered, they were proud of their “dry farming” that used only small amounts of water. However, the use of artesian water had allowed the farmers to expand production. During the 1890’s there was a drought, and the artesian water supply was suddenly diminished.

For the farmers, the solution was wind power. Windmills were built throughout the valley. They were used to pump water up to the surface where the artesian pressure had already run out. The water could then be used to irrigate the lands and maintain the livestock.

The windmills were an interesting part of the valley’s history. Many of the first ones, called Stevens Self-Regulating Windmills, were made in Redwood City. These began showing up in the valley in the late 1860s. Later, the San Jose Foundry began producing its own windmills which became popular with the valley’s farmers. Several other companies also offered windmills with names like the Tustin, Star Wind Engine, Cyclone, and Centennial.¹¹ Some farmers even built their own windmills.

The windmills were very diverse and gave the valley a picturesque look. Most of them were made from wood, except for the pump which was made of metal. The blades ranged from small three-inch-wide slats, to large, square sails. The blades were usually white and were decorated with red or blue stripes.

Even in the the city the artesian flows were getting weaker. Windmills were used to fill water-tanks on high platforms. Many families had one of these “tank-houses” as they were called. But soon the San Jose Water Company would be providing enough water for everyone.

The San Jose Water Company

As early as 1851, the Common Council had been ready to lay underground pipes. The rush for artesian water was on before anything was done, however, and the plans laid dormant. Nevertheless, the owner of the San Jose Foundry, Donald McKenzie, asked the Common Council for permission to build two water tanks near his foundry. These would be used to fill the city's fire cisterns. Permission was granted in 1864, and the tanks went up.

McKenzie knew that he was in a good position to ask for something else--the right to supply the people of San Jose with water. It was 1865 when his request was doubly granted. The City of San Jose, and the town of Santa Clara each gave him a charter. This charter gave McKenzie the exclusive right to supply the two cities with "good and pure water."

However, there were conditions that McKenzie would have to follow. The franchise would expire after twenty-five years. When this happened, the City of San Jose would have the option to purchase the company at its cost or appraised value. Also, San Jose and Santa Clara would be given water for fire-fighting free of charge. Finally, the rates would be set by the city, and re-evaluated every three years.

Then, on November 26, 1866, the San Jose Water Company was incorporated. This was accomplished by Donald McKenzie and John Bonner of San Jose, and A. Chabot of Oakland. Together, they scraped together \$100,000 in capital by issuing 1000 shares of stock, each worth one hundred dollars.¹²

At first, the Company supplied water to four hundred San Joseans. This was provided via the artesian well at the San Jose Foundry and the two fire tanks erected earlier.

This small supply was soon strained by increased demand for service. So, in 1868 the company was reincorporated with \$300,000 in capital from the sale of more stock. During that time this was a tremendous amount of money, yet the Water Company was only spending ten dollars a month to rent a large office space. The new company's first action was to acquire the right to supply water from the Los Gatos Creek.

During the next year, 1869, the Company was bought out for the first time by Nathaniel Mason. He acquired the majority of the stock, and established himself as president of the company. This was actually a good thing for the company, because Mason was formerly the president of the Gold Hill Water Company in Virginia City, Nevada, and he was experienced in the water business.

When Mason became president, the Water Company was ready for its next stage of growth. It was apparent that the customers' needs could not be met much longer if the Water Company depended solely on artesian water. The Company leadership was also concerned about the potential dangers of a drought, so they decided to build some reservoirs, which would allow the watershed area of the Los Gatos Creek to be developed.

The Company started to carry out its plans in August of 1869. A deal was made with the Forbes Flour Mill, a company which had been using the Los Gatos Creek as a power source. By the terms of this agreement, the Water Company was allowed to collect water with the set of small dams and reservoirs that the Flour Mill was using. This water was then used to supply the Water Company's customers.

During the years of 1870 and 1871, the Water Company's first two reservoirs were built. They were located on present-day Bascom Avenue. One of them was called the Seven-Mile Reservoir because it was dug seven miles from the city limits. The other was called the Three-Mile Reservoir since it was built three miles from the city. Soon, the reservoirs were filled via a flume from the Flour Mill.

With the Company's new interest in the Los Gatos Creek came a concern about the water flowing between its banks. The Water Company wanted to be sure that the water it was selling was pure, so the Creek was followed back to its source in the Santa Cruz mountains. Land in the Creek's watershed area was purchased while the reservoirs were being built. By 1871, 3,000 acres of watershed land had been purchased.

When the City of San Jose gave the Water company its franchise, it also granted the right to build underground pipes below the city streets. The first ones were built along First and Santa Clara Streets. Small, lateral pipes were then added to provide more thorough coverage. Also, an emergency pumping station was built on Santa Clara Street. By 1870, there were eight miles of thirteen-inch pipe in San Jose. Water service was extended to include Santa Clara in addition to San Jose. (This service lasted until 1895.)

During the next decade, even more progress was made. In 1880, the Water Company owned fifty-six miles of pipes, and pumped 2,000,000 gallons of water every day.¹³ Later, 6000 acres of watershed in the Santa Cruz Mountains were acquired. There were eleven reservoirs, and five pumping stations.

Up until 1886, the Water Company had been on agreeable terms with Forbe's Mill, however, they had a disagreement in 1886. This disagreement resulted in the Water Company purchasing the Forbe's Flour Mill for \$20,000.

This was an especially big step for the Company because Forbe's Mill had recently acquired the Los Gatos Water Company.

Under a new president, Edward Williams, the largest reservoir to date was built. It was constructed in 1874-1876, contained 104,600,000 gallons of water, and was named Lake McKenzie (at first it was called Lake Ranch Reservoir). In addition, during his time as president, three other reservoirs were built. They were called the Upper and Lower Howell Reservoirs, and the Lake Williams Reservoir. With the reservoirs the Company bought another 1,000 acres of watershed land.

In 1895, Santa Clara formed its own water company, so it was no longer served by the San Jose Water Company. Nevertheless, the Company grew at an unprecedented rate in the new century.

The Turn Of The Century

The San Jose Water Company had grown steadily in the early 1900s. New reservoirs and pumping stations were added as the demand for water increased. The president of the company was now George W. Cozzens. His first action was to win a lawsuit against the Bay Cities Water Company, which served Oakland and San Francisco. The dispute was caused when the Bay Cities Water Company tried to get approval for plans to divert 80,000,000 gallons of water from the Coyote Creek every day, then pump it through a tunnel to its own customers. The State Supreme Court decided the issue in San Jose's favor by blocking the construction of the proposed tunnel.

Another important event happened soon thereafter. This was the 1906 earthquake. It was thought that millions of dollars worth of damage to the water distribution system had been caused, but it turned out that the water system remained completely intact. If the water system had not survived, the business district of San Jose could have been reduced to ashes by a fire that started on Second Street.

In 1907 George McKee became the president of San Jose Water Company after Cozzens resigned. He served uneventfully until he was succeeded by Joseph Ryland. The first trial for Ryland was the expiration of the company's original charter in 1916. The status quo was maintained and the Water Company was given a perpetual franchise to supply the city with water. There were no management changes, but the company changed its name to the San Jose Water Works.

Also during this time the Water Works had a chance to buy out some of its competitors. The Cottage Grove Water Works and the Cherryhurst Water Company were acquired first. Later, the Willow Glen Water Works was taken

over. This brought the San Jose Water Works' number of customers to 23,000 in 1928.

The next president was Henry Kittredge. It was during his term that the Great Depression struck. In 1929, the water works was purchased for \$5,100,000 by General Water, Gas, and Electric Company.¹⁴ This was an Eastern holding firm. Kittredge continued to hold office and built up the Water Works to include 340 miles of water main.

In the 1930s the Water Works purchased even more watershed areas. Wright's Station, a railroad town in the Santa Cruz Mountains, was acquired in 1936. With these additional lands, the Water Works could insure that its water supply would not be polluted. The company hired some workers to patrol the watersheds by horse and prevent trespassers from ruining San Jose's water supply.

When the Water Works purchased Wright's Station, they began a fifty-year vendetta against Shelley Cothran, a landowner in the watershed area. Each side filed numerous lawsuits against the other because Cothran was determined not to sell his land to the Water Works. Shelley Cothran ran his own case as an amateur lawyer. Essentially, he spent his life battling the Water Works in court. During this feud, he disqualified several judges, and accused the Water Works of murder and setting fire to his house. He died in 1985, thus ending his battle with the Water Works.

The Santa Clara Valley Water District

As early as 1920, it was known that the water table was dropping at the rate of five feet per year. Little action was taken to remedy this problem until the Santa Clara Valley Conservation District was formed in 1929. The voters had approved the formation of the District by a large majority even though they knew it meant a new tax for them during the tough times of the thirties.

Nevertheless, it took five years to amass enough money to build the District's first large dams. Unlike the Water Works' reservoirs, the lakes created by these dams would be used to percolate water back down into the water table. When the water was stored underground, it could easily be pumped back up to the surface for distribution by the water company.

In 1934, \$2,000,000 was appropriated to build five dams. Later, the Conservation District was given an additional \$683,000 from the federal government and \$400,000 from the local voters. The first dam was the Coyote, which held up to 25,000 acre-feet of water. The others were the Almaden, Guadalupe, Stevens Creek, and Vasona Reservoirs. Together, the five dams could hold 44,000 acre-feet of water. This water could easily be percolated back down to the underground streams and lakes.

After the dams were completed in 1936, they were an immediate success. Until 1942, rainfall levels averaged two inches above normal. The dams were able to catch this water and keep it from being wasted in the salty water of the San Francisco Bay. The water was spread out, then allowed to seep underground.

The water table rose dramatically. About fifty of the artesian wells that had been dry for years began to flow again. Even some of the houses with earth-floor basements discovered water in their cellars. Also, the dams

prevented flooding that would have surely occurred in the downtown and Willow Glen areas which were notorious for flooding during heavy rains.

The Elsman Era

In 1937, Ralph Elsman replaced Henry Kittredge as president of the San Jose Water Works. Elsman was by far the best president that the Water Works had ever had. He made the company grow like it had never grown before.

Elsman was an extremely talented man. Not only did he run the San Jose Water Works, but he took on the added responsibilities of President of California Water Service Company. This was California's largest privately owned water company. It operated in thirty-one different counties throughout the state, but Elsman encouraged them to move their office quarters to the new Water Works building at 374 West Santa Clara Street in San Jose.

During the first year of his term, Elsman faced a takeover attempt from the City of San Jose. Many people thought that it was time that the City owned its water works because the rates could be cut. Also, many of California's other major cities had municipal ownership of their utilities. In order to make the people aware of this issue, the Water Works distributed a pamphlet called A Wealth of Good Water. When the issue went to the ballot in May of 1938, it was defeated. Part of the reason for this was that the voters would have to pay a bond of \$5,520,000 in extra taxes.

When Elsman became the president of San Jose Water Works, it was still part of the Eastern conglomerate, General Water, Gas and Electric Company. He was whole-heartedly concerned about the welfare of his new company, and he wanted it to break off from the conglomerate. Once, he even said, "Whoever controls water in Santa Clara County controls Santa Clara County." He reorganized the Water Works' financial system and was soon able to pay off a three-million-dollar debt from a New York bank that the

company had built up during the Depression. In 1945, he succeeded in getting the Water Works to buy its stock back from General Water, Gas and Electric.

In 1951, the Elsman administration shifted its focus to expansion. With the help of his Chief Engineer, Nathaniel Kendall, he organized the construction of the Austrian Dam. The dam was built in a single year by utilizing two shifts of workers. It cost the Water Works \$1,100,000 to build. The lake created by this dam was later called Lake Elsman. During this time a forty-two inch pipeline to help fill the Cambrian Reservoir was also constructed.

The fastest growth experienced by the Water Works was in 1960. In that year twenty-six wells were dug, and the distribution system was expanded with eighty-three more miles of water mains.

Even with the new reservoirs and wells, it became clear that the Water Works was going to have to start importing water. This was done through an arrangement with the Santa Clara Valley Water Conservation District. In 1965, the District was able to obtain water from the South Bay Aqueduct and the State Water Project. The foreign water was percolated into the valley floor or was fed through treatment plants to the Water Works' customers. The Santa Clara Valley Water Conservation District and the County Flood Control District merged in 1974. The unified body was then named the Santa Clara Valley Water District, which continues to be responsible for today's percolation ponds.

In 1968, Elsman retired. The Water Works now served 132,800 customers throughout an area of 118 square miles. This system had 1,547 miles of iron mains and was ready to provide water to a swelling population from the huge Lake Elsman.

Kendall & Weinhart

Nathaniel Kendall was an obvious choice to replace Elsmann, because he was also responsible for much of the company's growth. His term, however, was rather uneventful. The Water Works was already expanded enough for the rising population, but he did face one problem. The City of San Jose again became interested in purchasing the Water Works. Negotiations were held, but San Jose never made a solid proposal; consequently the Water Works was not sold.

In 1974, J.W. Weinhart, the company's current president, took over. The system did not need any more expansion, so Weinhart has set about improving the current system. The original water mains (they were more than one hundred years old) have been replaced. Computers have been put to use in the billing, meter reading, and pumping systems.

In 1980, the Water Works purchased the Campbell Water Company. This added another 5,300 customers to the 190,000 that the Water Works already had.¹⁵ Unfortunately, it soon became the Water Works' turn to be bought out. The Roscoe Moss Company acquired thirty-one percent of the Water Works' stock which gave it a controlling interest. This company makes steel water pipes and is a well-drilling firm.

In the mid-1970s there was a drought. The Company pumped record quantities of water. It did not take long, however, for the Water Works to realize that saving water, not selling water should be its primary concern. The Water Works distributed water conservation kits to its customers for the first time in 1977. This prompted a twenty-three percent reduction in water usage. In 1983, the Water Works changed its name back to the San Jose Water Company.

Recent Problems

The 1976 drought was ended quickly with an exceptionally wet year in 1978. Now, California is experiencing another drought. From 1986 to 1991, rainfall has been below average. These five years of drought have reduced the water levels of reservoirs all over the state. Cutbacks in the amount of imported water have also occurred. Beginning in 1989, the Water Company has rationed water to its customers. Penalties are charged for excess use. To date, the rationing has not been lifted, even though we have had above-average rainfall in 1992. The reason for this is that the reservoirs are still only at around thirty-five percent of capacity.

On October 17, 1989, the Loma Prieta earthquake shook the Bay Area. This time the water system did not get off scot-free. Pipes in the Santa Cruz Mountains and the town of Los Gatos were damaged, but the Water Company sent out its repair crews and was able to restore services to 98% of its customers within thirty-six hours. The Austrian Dam at Lake Elsinore was also damaged, but it was quickly repaired.

Conclusion

The first civilizations were formed when people gathered near rivers and began to build cities. This is the story of San Jose. Water became available, and people were attracted to this valley. The availability of water made it possible for businesses to come and attract even more people. In part, this new wave of people came because the San Jose Water Company was able to meet its customers' demands for water. During its one hundred and twenty-six years of existence, the company has grown as dramatically as the city it serves. In 1866, the Water Company served only four hundred customers. Now it supplies water to 204,137 customers. Water Company officials estimate that they provide water for 755,000 of San Jose's residents. The Company started with two water tanks and a few wells, and now has huge reservoirs and 2,297 miles of water mains.¹⁶

In the past, the Water Company has equated success with growth. The current drought has caused an important transformation in this philosophy. The Water Company has realized that water conservation is now tantamount to its success. Two significant changes are being made within the company. These are efficient management of increasingly scant resources, and the education of the public about water conservation. These and other changes will allow the Water Company to survive in the years that lie ahead.

NOTES

1. Clyde Arbuckle, History of San Jose. (U.S.A.: Smith and McKay Printing Co., 1986), p. 503.
2. Ibid.
3. William F. James and George H. McMurry, History of San Jose California, (San Jose: Smith Printing Co., 1933), p. 95.
4. Arbuckle, Op. Cit., p. 502.
5. James and McMurry, Op. Cit., p. 95.
6. "Water," The San Jose Mercury News, May 17, 1951.
7. Ibid.
8. Arbuckle, Op. Cit., p. 503.
9. Ibid.
10. Arbuckle, Op. Cit., p. 504.
11. Ibid.
12. Whaley, Sharon, San Jose Water Company 125th Anniversary, 1991, p. 4.
13. History of Santa Clara County California, (San Francisco, Alley, Bowen and Co. Publishers, 1881), p. 535.
14. Whaley, Op. Cit., p. 16.
15. Ibid. p. 27.
16. SJW Corp Annual Report, 1991, p. 26.

Bibliography

- Arbuckle, Clyde, History of San Jose, U.S.A.: Smith and McKay Printing Co., 1986.
- Draper, George, "A New Battleground for Water Works' Old Foe," San Francisco Chronicle, December 2, 1968.
- "Fluoride Vote 'On Again'" San Jose Mercury News, August 18, 1964.
- Grant, Joanne, "Private S.J. Utility Marks 125th Year," The San Jose Mercury News, December 2, 1991, p. 1B.
- Hall, Frederic, History of San Jose and Surroundings, San Francisco: A.L. Bancroft and Co., 1871.
- "Hetch Hetchy Water in 1951," Water Record, March, 1950.
- Hille, Jan, "Supreme Court Will Review Shelley's Case Against S.J. Water Works," Almaden-Cambrian SUN, April 14, 1971, p. 3.
- James, William F., and George H. McMurry, History of San Jose, California, San Jose: Smith Printing Co., 1933.
- Parks, Leslie Sayoko, A History of the San Jose Water Co., 1983.
- SJW Corp. Annual report, 1991.
- "S.J. Water Co. Head Elsman Ends Reign," East San Jose SUN, September 25, 1968, p. 17.
- Skillicorn, Bob, "Long S.J. Fluoride Hearing Winds Up," San Jose Mercury News, May 27, 1966.
- Sweeney, Frank, "Likely End to Rationing Worries Critics," San Jose Mercury News, April 5, 1992, p. 1B.
- "Water," San Jose Mercury News, June 17, 1951.
- Whaley, Sharon, San Jose Water Company 125th Anniversary, 1991.
- Whaley, Sharon, (Public Relations Officer at San Jose Water Company) interviewed by phone on April 8, 1992.
- "What's Back of the Faucet?," San Jose Water Works.

Sponsor:
Mrs. Kathryn Philp

School:
Willow Glen High School

Michael Stoner
1620 Sweetbriar Dr.
San Jose, CA 95125
(408) 265-6497