

History and Description of the City of Santa Rosa Water System

The history of the City of Santa Rosa's water system prior to 1947 is that of two separate systems, the municipally owned City system and that of a private water company, the Santa Rosa Water Works.

In May, 1947, the people of Santa Rosa voted the issuance of \$440,000.00 worth of bonds for the improvement of the City's water system and that same year purchased the Santa Rosa Water Works for \$276,986.98. The two systems were combined and the operation as one system began on October 1, 1947.

THE SANTA ROSA WATER WORKS, which was also known as the McDonald System, was organized under the laws of the State of California in 1873 and received a fifty year franchise from the City of Santa Rosa that same year. In 1924 the franchise was renewed for fifty years.

A gravity system of water distribution was operated by the company. Water was diverted from Santa Rosa Creek at Melita and from springs on the McRae Ranch to a small impounding reservoir on the company's property. The reservoir was abandoned in 1873 when an earthen dam was constructed to form Lake Ralphine, several thousand feet to the west. In 1894 the Lake Ralphine dam was raised seven feet to its present height. The Lake has a gross capacity of approximately 135 million gallons and a useable capacity of approximately 122 million gallons. When full the Lake has a water surface area of approximately 27 acres, a water surface elevation of 251.6 feet and a depth of approximately 30 feet.

The creek and springs water in the lake was later supplemented by water pumped from a small natural springs formed lake located at the southerly end of Carley Road near Herbert Slater Junior High School.

The water flowed from Lake Ralphine to the City through two transmission mains, one a 9-inch riveted wrought iron pipe laid in 1873, entering the City at St. Helena and Fourth Streets, and the other an 11-inch riveted wrought iron pipe laid in 1876 which entered the City via Sonoma Avenue. The pressure in the company mains in the Santa Rosa business district was about 30 pounds per square inch in contrast to present day pressure of approximately 70 pounds (p.s.i.). The last section of the 9-inch riveted pipe was retired by the City Water Department in the spring of 1950. The Santa Rosa Water Works partially replaced the 11-inch pipe with a 16-inch steel pipe in 1927 and the remainder in 1939.

Up to the time the City bought the system, the Santa Rosa Water Works grew slowly but steadily except for the last two years, when new subdivisions in the outlying areas began to develop and the number of the company's services increased by over 55% to a total of 2,297. The company was then pumping approximately 227,278,000 gallons per year with a maximum day of approximately 2,175,000 gallons.

THE CITY OF SANTA ROSA started the construction of a municipal water system in 1893 to supply water to the inhabitants within the corporate limits of Santa Rosa. A pumping plant was constructed on Sonoma Highway adjacent to the Santa Rosa Creek at Farmers Lane. The massive rock foundation of that plant is now used as the foundation of a small commercial building and can be seen from the Farmers Lane bridge. Water was collected from the creek through a perforated pipe laid beneath the gravel of the creek bed and was then pumped by steam driven pumps to a 902,000 gallon open concrete reservoir situated on Proctor Heights, approximately 1000 feet northeasterly from the plant. Several years later a wooden superstructure was placed on the reservoir to help maintain the quality of the stored water. Due to the scarcity of the water in the creek during the summer months, the creek plant was abandoned after a few years of operation.

A pumping plant on a five acre parcel fronting Sonoma Avenue at the end of Farmers Lane was then established. Water at this location was collected in an infiltration gallery, a horizontal tunnel approximately 500 feet in length, 5 feet high and 4 feet wide, 50 feet beneath the surface of the ground. Steam driven pumps set in a pit beside the tunnel pumped the water through a 14-inch cast iron pipe to the Proctor Heights reservoir. This plant was converted from steam to electricity in 1913.

The water flowed from the reservoir to the City, through a 12-inch cast iron bell and spigot pipe laid in 1897, via Fourth Street. A 12-inch Universal Cast Iron pipe from the reservoir to the pumping plant and thence to the City via Sonoma Avenue was laid in 1906. Both of these transmission mains are still in use.

The water in the tunnel at the Sonoma Avenue Pumping Station was later supplemented by artesian water spilling into the tunnel from cased wells drilled down through and near the tunnel during the period 1908 to 1918. The pump station building, now on a standby basis, was erected in 1923. Two electric driven air compressors were used to air lift the water out of the three cased wells, known as #1, #2, & #3. The casing of Well #1 was later perforated so that the tunnel water could flow into and supplement the well water. The water was pumped from the wells through a fountain type aerator, to a 460,000 gallon terminal reservoir and then pumped to the reservoir at Proctor Heights. In 1940 a 1,050,000 gallon reinforced concrete reservoir was built close to the original Proctor Heights Reservoir. The air lifts had been used for only two years when electric driven turbine pumps were installed in the wells. Well No. 4 was drilled at this location in 1940.

By 1947 the municipal system had 4,615 services, and was pumping approximately 681,410,000 gallons a year with a maximum day of 3,130,000 gallons.

THE SANTA ROSA WATER DEPARTMENT, subsequent to the consolidation of the two systems in 1947, has had a rapid growth and has made many improvements in all phases of Departmental activities. Administratively, a three member and later a five member Board of Public Utilities as provided by the City Charter, was appointed and proceeded to hold meetings on a scheduled basis to determine policy matters. New water rates were established to put the Water Department on a self-supporting basis. A water main extension policy was inaugurated. New billing procedures and accounting methods were put into effect. A work order system was inaugurated. System maps and records were brought up to date. Field crews were organized under a City Personnel Classification procedure.

Operationally, new water treatment equipment and methods were installed and instituted. Pumping and treatment operations were placed on a 24 hour controlled basis. Water meters were installed on all unmetered services. Meter testing equipment was purchased. Full time meter repair work was started and meter records established. Worn out equipment was replaced and a continuing renewal and maintenance program was instituted. The City received a State of California Department of Public Health Certificate for operation of a water system under Departmental Health Standards.

During a low water level period in December, 1951 a large portion of the almost vertical upstream rock face of the Lake Ralphine dam slid into the lake. In the spring and summer of 1952, Lake Ralphine was drained, the upstream face of the dam was reconstructed, and intake tower constructed in the lake, and the pumping and treatment facilities were moved from the top of the dam to a new building at the downstream base. With 100% cooperation of the public, voluntary regulation of water use for irrigation was in effect during the summer of 1952. Customers on opposite sides of the street irrigated their gardens on alternate days making it possible to go through the summer without shortage of water during the dam reconstruction period.

During the decade of 1948-58 more than 50 miles of water mains were constructed, 4,500 service connections were installed representing an increase of approximately 65% to a total of 11,461. Eight wells and a spring development were added to the production facilities to boost production capacity approximately 94% to a yearly total of 1,763 million gallons and a maximum day of 10.5 million gallons. Population served by the system increased by approximately 16,000.

The source of water supply until June, 1959 continued to be from springs, wells and impounded surface water. The surface water from the Santa Rosa Creek is impounded in Lake Ralphine, situated in the westerly portion of 366 acres of land purchased by the City monies derived from the 1947 Water Bond. The area is now known as

Howarth Park and includes the property formerly owned by the Santa Rosa Water Works and the McRae Ranch. It is located in the easterly portion of Santa Rosa, bounded on the east by Montgomery Drive and the west by Summerfield Road.

The Santa Rosa Creek water was diverted by a structure known as Melita Dam and conveyed by gravity to Lake Ralphine through a 24-inch steel pipe 8,000 feet in length, constructed in 1948. The 24-inch pipe could also receive water from McRae Springs, a tunnel development, constructed in 1948 on the McRae Ranch property adjacent to the transmission line. Two wells, one drilled in 1947, and one in 1952, and two leased wells located upstream from the Melita Diversion Dam could also discharge water into the 24-inch pipe.

Water can also be pumped to the Lake through a 14-inch pipe from the Peters Springs Well and Carley Well situated on the 7 acre parcel of City owned land at the end of Carley Road. The Peters Springs Well was drilled in 1923 after the small lake in this area had dried up. The Carley Well was drilled in 1949.

The well-field at the Sonoma Avenue Pumping Plant, situated on a five acre parcel of City property at the southerly end of Farmers Lane is bounded on the north by Sonoma Avenue and on the south by Spring Creek. This well field was used to supplement the Lake Ralphine supply during the summer months and furnished approximately 60 per cent of the total supply during the dry months of the year. The water from the six wells in this field was discharged through a fountain type aerator into a 460,000 gallon terminal reservoir from which it was pumped to the distribution mains and the reservoirs on Proctor Heights.

To supplement the water supply, a large well known as the Freeway Well, was drilled in 1957 at the corner of Cleveland Avenue and Ridgway Avenue. The water from this well was chlorinated and discharged directly into the mains.

After several years of study and investigating new water supply sources, the City Council in 1950 and 1952 passed resolutions declaring its intention and willingness to contract with the Sonoma County Flood Control and Water Conservation District for the supply of Russian River water for domestic and industrial use.

The action of the City Council, by guaranteeing the necessary bond payments and purchase of water, made it economically possible for the people of Sonoma County to vote the necessary bonds to pay County's share of the construction cost of Coyote Dam on the Russian River and to proceed with this project as planned by the U.S. Army Engineers. It also made available the money to construct, the County Aqueduct and other water transmission facilities required to deliver the water from Russian River to Santa Rosa.

In 1956 the City Council and Board of Public Utilities authorized the issuance of Water Revenue Bonds in the amount of \$2,000,000.00 to finance the expansion and extension of the City Water distribution system. By the spring of 1959, over eleven miles of new major water mains were installed, two pump stations and two reservoirs to serve new higher elevation areas were constructed. Also twelve pressure regulated connections were made to the new County aqueduct which had been recently completed.

Water from the County aqueduct was turned into the Santa Rosa distribution system on June 17, 1959 and the City's water production facilities which had been used up to that time were put on a stand-by status to be used in emergencies.