

VILLAGE OF WELLSVILLE

DEPARTMENT OF PUBLIC WORKS

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History of Wellsville's Water Department - 1882 to 1991

The Village Board minutes report that a referendum was held on July 2, 1883 on the following resolution; "That there be raised by tax the sum of 1200 dollars to pay the annual rent to Water Works Co. for thirty years for 30 hydrants to be used by the Village." Eighty-seven votes were cast, eighty-two "yes" and five "no". This commitment by the voters made a public water supply economically feasible and Mr. W. S. Kuhn incorporated the Wellsville Water Co., a private firm in September 1883. On December 1, 1883 the Village began paying the hydrant rental. The Water Company was in business. In the 108 years since then many things have happened.

The first water supply came from a reservoir built on Crowner Creek about a mile southwest of the Village. The reservoir covered an area of about 1.75 acres, was 14 feet deep at its deepest and had an estimated capacity of 5,000,000 gallons. The flow line at the reservoir was about 185 feet above the lowest point in the Village, and water was brought to the intersection of West State Street and Highland Avenue through a 10-inch pipe. Remnants of this reservoir are still in place today.

Shortly after the reservoir was built a law suit was instituted against the Water Company by a Mr. Crowner who owned property located on Crowner Creek below the reservoir. He claimed damages for being deprived of his water supply from the creek and was awarded \$200 plus \$800 court costs.

As a result of this litigation an additional water supply was developed by installing nine driven wells near the bank of the Genesee River between the river and an old mill-race located near where the Benjamin Smith Co. now stands. Eight of the wells were from twenty to twenty-seven feet deep and the ninth was 175 feet deep. Around 1905-06 the Crowner Creek reservoir was removed from service due to contamination and these wells supplied all the Villages water until 1916.

The original water system cost \$40,000. \$30,000 of this was covered by twenty-five year bonds bearing interest at 6%. The yearly revenue from water rates was \$3,000 in addition to the Village's \$1200 hydrant rental. By 1906, 3800 of the 4,355 Village inhabitants were served by the Water Company, average system consumption was 510,000 gals. per day. Total earnings that year were \$14,568.11 and expenses were \$13,617.50. By comparison current budgets approach \$600,000/year.

There was a lot of public dissatisfaction with the operations of the Wellsville Water Company. The equipment was antiquated, in poor condition, and unreliable. The Village considered buying the

Wellsville Water Company several times from about 1910 onward and in 1912 they even had an engineering study and plant valuation prepared. The value of the water system was set at \$75,850.

In 1915 the Board of Trustees appointed a citizen's committee to again investigate the situation and make recommendations. As a result of this committee's report the Village Board decided to purchase the property of the Wellsville Water Company and its companion company the Wellsville Electric, Heat and Power Company.

In a special election, held May 10, 1915 the Village voters overwhelmingly (357 to 41) approved the purchase of the Wellsville Water Company for \$75,000 and the expenditure of an additional \$104,000 for system improvements. A bond issue to pay these costs was also authorized. The Wellsville Electric, Heat and Power Company was also purchased for \$37,500 and \$25,000 was voted for improvements. The Village of Wellsville was in the Water and Electric business.

Immediately after this acquisition a major improvement program was begun. A big portion of the improvement funds were for the construction of a slow sand type water filtration plant at the top of Lee Place. This plant was completed late in 1916 at a cost of \$75,000. Unfortunately almost nothing went right with this project from the beginning. First the Village, its engineers, Hopkins and Field of Rochester, and the Contractor, J. H. Havens of Olean fought over the quality and quantity of the work. When the plant finally went into operation it did not perform as expected. The Genesee River, for the first time used directly as a source of raw water proved too muddy for the plant to properly treat. Ice damage to the filters caused cracks in the walls and floors allowing a large amount of leakage. This leakage, amounting to 100,000,000 gallons/year cost a lot of money to pump to the top of Lee Place and then did substantial damage to private property on E. State St. on the way down. This led to more lawsuits against the Village.

The Village hired Horton, Barker and Wheeler, Engineers of Albany to review and report on the situation. They concluded that repairs would be expensive and could not be guaranteed to last. The plants 750,000 gal/day treatment capacity was too small and would need to be expanded to 1,000,000 gal/day and that slow sand filter technology was both obsolete and not adapted to cold climates. They recommended abandoning the slow sand filter and constructing a 1,000,000 gal/day mechanical or rapid sand filter plant at the site of the electric plant and water pumping station on W. State St. The Water and Light Board accepted this recommendation. After only five years service the slow sand filter plant passed into history, an expensive and unhappy failure. The foundations are still evident and the dedication plaque is displayed in our new building but the only part of this plant still in service is the reservoir.

The mechanical filter plant was designed by Horton, Barker and Wheeler, the same firm that reviewed the Lee Place plant. This firm and its successors did engineering work for the Wellsville Water and

Light Department from 1921 until 1976 when the last partner died and they went out of business.

The project went very rapidly. On May 21, 1921 the Village voters again went to the polls and approved \$40,000 in funding for the new plant by a vote of 124 to 74. Bids were opened July 15, 1921 and the J. F. Williamson Co. of New York City was the successful bidder with a base bid of \$35,979.

Construction proceeded with a minimum of problems and when placed in operation the plant proved to be a great success. It operated successfully with a relative minimum of maintenance until July 1990, a period of 69 years, treating about 25 billion gallons of water. The plant was located in the W. State St. electric generating and water pumping station so that the increased labor needed for its operation could be shared with the Electric Department. It was a very difficult plant to maintain because of the cramped quarters and lack of access to process units and in the entire time of its operation the filter sand was only replaced once. The amount of water treated rose from 461,000 gal/day in June 1922 to 981,000 gal/day in April 1948. From then until the plant was retired use averaged around 1,000,000 gal/day which was the full capacity of the plant. This required seven day around the clock operation of all three filters to keep up with the demand. This also made maintenance operations very difficult.

In 1967 the Water and Light Board hired a consultant, K. G. Woodward of Webster, NY to search for a ground water supply since it was agreed wells would be cheaper than a new treatment plant for Genesee River water. The results were not encouraging.

Lack of funds, the sudden death of Superintendent Charles Engelder and the disastrous flood caused by tropical storm "Agnes" in June 1972 all combined to put a new water treatment plant on hold for some years.

In 1982 we again started planning replacement of the now aging rapid sand filter plant. Lozier Architects/Engineers of Fairport, NY were retained to assist in deciding on a water supply source and designing the required facilities. A ground water supply was again briefly considered but the ground water pollution found at the old Sinclair oil refinery site during the "Superfund" investigations made a ground water source near the treatment plant site very unpromising. More remote well sites added transmission costs and the geologists were not overly optimistic about finding adequate water at any single location. Consequently we decided to stay with the Genesee River as a source.

The plant was designed and the necessary reviews from the New York State Departments of Health and Environmental Conservation and the Allegany County Health Department were obtained. Bids were opened on April 18, 1989. The successful bidders were General Contract; MED Constructors, Buffalo, NY - \$2,162,000; Electrical Contract; Box Electric, Bath, NY - \$218,300; Plumbing and Heating Contracts; Sky

Plumbing and Heating, Wellsville, NY - \$106,014. A total bid of \$2,486,314.

Construction began in June 1989 and continued until the plant was complete a year later. The first water was treated in June 1990 and within a month the old plant was retired. During its first eighteen months of operation the new plant has proven very successful and we look forward to many years of successful operation.

The 3,000,000 gallon open concrete reservoir (190 ft. diameter, 15 ft. deep) on Lee Place was built as a part of the slow sand filter plant in 1916 and it is still in service. Due to deterioration of the concrete it was relined with Gunitite, a sprayed concrete, in 1928, at a cost of \$25,000. In 1948 additional water storage in the form of a 750,000 gallon steel reservoir was constructed on the Lee Place property at a cost of \$16,000. As part of our new plant, a 635,000 gallon underground reservoir has been constructed on the Treatment Plant site. This gives us a total storage capacity of 4,385,000 gallons, about four days use at current demand.

From the first a pumping station was required to produce adequate water pressure to serve the higher elevations and fight fires. The station has always been located on the south side of State St. on the banks of the Genesee River. Little information survives on the first pumping station except a photograph, taken June 1, 1889, showing the station completely flooded by the overflowing Genesee River. The same storm that produced this flood in Wellsville caused a dam collapse and the resulting deaths of over 2,000 people in the famous Johnstown, Pennsylvania flood.

The next pumping station was a brick structure built in 1893, 38 feet wide by 45 feet 7 inches long. Portions of this structure are still included in the present Electric Department building. The machinery consisted of two 80 HP and one 50 HP tubular boilers. The larger boilers were manufactured by the McEwen Boiler Works of Wellsville, formerly located in the building at the northwest corner of State and Main Streets. Both of these boilers were installed in the original pumping station, one in 1886 and one in 1891. They were moved to the new station when it was built in 1893. The two steam driven pumps were manufactured by Worthington. Each had a rated capacity of 1,500,000 gal/day at a pressure of 150 psi. The first unit, which cost \$1,450, was installed in 1888, the second was purchased used from Huntington, West Virginia in 1893. They remained in service until scrapped in 1922.

In 1917 an electric powered centrifugal pump, capacity - 1,750,000 gal/day was installed. It apparently was the prime duty pump until 1921 when the rapid sand filter plant was placed in service and it remained as an auxiliary pump until 1944.

The pump installed new with the rapid sand filter plant in 1921 served until 1949 when a 1,250,000 gal/day Worthington, electric driven high pressure water pump was installed at a cost of \$3,000.

The old pump then went on standby service. Both of these pumps were retired from service in 1990 when the new plant began operation.

The Genesee River was not directly used as a potable water source until 1916 but in 1898 a small dam was built across the River adjacent to the pump house to provide an emergency water supply to fight fires.

The 1916 improvement project included a new intake dam and intake chamber. The specifications tell us that the dam was made of wooden piles of pine, oak, or maple spaced five feet apart. Planking of two inch thick tongue and grooved pine was placed behind and spiked to the piles with two 8 inch by 1/4 inch spikes per plank. Along with this dam a concrete inlet chamber, an intake pipe line and pump well were also built.

In the late 1920's the Sinclair Refinery had a major expansion and the expanded refinery operations were expected to have a negative impact on water quality in the river. Consequently, in 1929 a concrete intake dam was constructed jointly with the Sinclair Corp. The dam was located adjacent to the Sinclair power house it provided boiler feed water to the power house as well as raw water to the Village. The Village's intake was on the east side of the river and the water flowed by gravity through a 16 inch wood stave line to Island Park where it crossed the river to the treatment plant. In 1944 the Village purchased the Old Fairgrounds property, now known as the Lagoon Recreational Area for \$3200 to protect the land adjacent to the water intake from commercial development and potential contamination.

In 1956 the U.S. Army Corps of Engineers built a badly needed flood control project on the Genesee through Wellsville. While this project was a great improvement it turned out to be under-designed. The Corps of Engineers redesigned the project to provide increased capacity but a stumbling block to construction of this improved flood control was the requirement that the Water Department relocate the water intake at its expense. The Water Department felt they could not afford to do this and a brief impasse developed. The "Agnes" flood of June 21-23, 1972 struck and within two years a new intake, adjacent to the treatment plant was built with a combination of local and federal funds.

This intake had not been operating for long when serious erosion of the old Sinclair landfill and consequent pollution of the river was discovered in 1981. This environmental problem was soon placed on the "Superfund" list and given a high priority nationwide because of the threat to the water supply. Water Department officials recognized that the intake should be moved upstream of the former refinery site to avoid any possibility of pollution from that source. They pressured State and Federal officials to build an upstream intake. New York State DEC, using funds supplied by ARCO, successor to Sinclair Refining Co. built a new intake, pump station and transmission line and turned it over to the Village in 1988. The 1974 intake and pump station were retained as an emergency backup. In 1990

the Village installed two larger pumps in the raw water pump station to improve its operation.

The history of the distribution system is more difficult to trace because traditionally there are small construction and improvement projects done each year rather than major efforts at infrequent intervals such as is typical with treatment plants, pump stations and the like.

In 1912 there were 880 customer accounts, today there are 2200. Over the years the distribution system was expanded to reach these additional customers. The original system contained a lot of 4 inch pipe. This has slowly been replaced with 6 inch or larger for better fire flows. Many dead ends such as East State St., Wheeler Place, Scott Ave., were served with 2 inch or smaller galvanized pipe. Over the years much of this has been replaced with larger pipe. Dead ends have also been eliminated by looping, which improves pressures and fire protection flows.

The original distribution system installed in 1883 and shortly thereafter consisted of about 3 1/2 miles of "kalomein" pipe varying from 4 to 8 inches in diameter, with 30 fire hydrants and about 180 customer taps. "Kalomein" pipe, made from an alloy of steel and lead was only manufactured for a short time as it did not prove very satisfactory. Nevertheless, the last "Kalomein" pipe, on East Pearl Street near Main was not retired until 1983 after giving 100 years of service.

Today the distribution system has about 26 miles of pipe ranging from 2 to 10 inch diameter, 250 fire hydrants and serves 2200 customer accounts.

Some of the major distribution system projects over the years have been; in 1930 a 10 inch cast iron line was installed on Main St. from State to Pearl at a cost of \$34,000. This was done in conjunction with street widening, removal of electric distribution poles and installation of ornamental street lighting. In 1937 a \$25,000 bond issue paid for the extension of this line on Main to Coats St. Until 1983 this was the only feed to Dresser-Rand. In that year a 10 inch line was laid on Loder from Pearl to Martin to loop feed Dresser-Rand via Farnum and Herman and in the following year a line was installed on the Bolivar Road from Main to Highland which improved the feed to both the K-Mart Plaza and Dresser-Rand.

In 1967 a major water line project was contracted including a strengthening of south end feed by installation of a 10 inch line down Miller St. with a Dyke Creek crossing at the Miller St. drop structure, 10 inch line on Martin St. from Main to Railroad, and other improvements including a rail crossing.

In 1970-71 many new lines were installed in conjunction with the construction of Phase I of the Wellsville arterial. Included were new lines on Dyke Street and a new 12" under river crossing at Pearl St.

The largest single distribution system project undertaken here occurred in 1978 when over a mile and a half of line was replaced to reduce the possibility of freezing and improve service. The winter of 1976-77 was very cold with little snow cover which resulted in many customer freeze-ups, a large percentage of them due to frozen mains. At the worst over 450 customers were without water for over a month. Federal emergency funding was made available and this money, supplemented by local funds was used to replace the most freeze prone lines. The work was done by the Village using a crew hired specially for this project using experienced Village personnel as foremen. This crew was under the direction of Jon Palmer, Assistant Director of Public Works. The project was very successful and freeze-ups have been practically eliminated from our system.

This report has been compiled from the minutes of the Village Board, minutes of the Board of Water and Light Commissioners, a body now combined with the Village Board but separate from 1915 until 1982 and the surprising number of old documents that still survive in the files. Some date from before the turn of the century. Finally, my personal recollections of events over the past twenty-five years are also included here.

Don MacFarquhar