

# The History and Value of Crystal Springs at the City of Florence, Kansas



**A** group of men known as the Florence Town Company originally founded the city of Florence located at the base of the Flint Hills where K-77 and K-50 highways intersect. On September 23, 1870 it was announced in the Emporia News about the new townsite at the mouth of Doyle Creek. The town was named Florence in honor of the daughter of Governor Samuel J. Crawford, the third governor of the state. Crawford served as governor from 1865-1868 and as the president of the Florence Town Company. The group of men that made up the Florence Town Company chose the townsite based on the route that was chosen by the Atchison, Topeka and Santa Fe Railway to cross the Cottonwood River. Like many small Kansas communities the railroad was instrumental in the town's early beginnings. In 1871 the railroad

This 85,000-gallon standpipe was constructed in 1887 and continues to serve the city.



**Florence Mayor Robert Gayle stands beside the memorial marker that provides some history of Crystal Springs, the water supply for the city of Florence.**

extended its route from Emporia to Newton. In 1908 the 27th president of the United States William Howard Taft gave a campaign speech in Florence just prior to his election.

The original Florence water system was constructed in 1887. It consisted of an 85,000-gallon standpipe, cast iron mainlines and a large hand-dug well 20 feet in diameter located along the Cottonwood River. Water would seep into the well through the sand formation and was pumped with a steam-powered pump into the distribution system and the elevated storage tank. That must have been quite a luxury to have a pressurized public water supply system for potable use and fire protection. Though not much thought at the time was given to water quality and meeting all the requirements of a public water supply system of today's world, just having a pressurized public water system was all that seemed important at the time.

The original water storage tank is still in use today at Florence. It is quite unique as a 110-foot, riveted steel tank lined with native limestone along the bottom half then later reinforced with concrete.

**Excess water from the spring not needed by the city water system is diverted back to a stream that flows into the Cottonwood River.**

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I have not seen another tank quite like it. Located on the northwest corner of town it takes advantage of the natural elevation as compared to the rest of the town.

The details are somewhat unclear but at some point it was decided that a better supply of water was needed rather than the hand dug well along the river. At that time sewer systems could be piped directly into the river with no treatment and that could prove to be a disaster for a potable water intake that was located too close. A natural spring was located just north of town, which became Florence's trademark as they proudly state on the base of the water tank. The water was high quality spring water that was flowing from precipitation that fell over the hills north of the spring. The elevation of the hills naturally forms hydraulic head pressure, which allows the spring to flow out of the fractured rock at the lower elevation year round.

In 1993 the city constructed a water filter plant to meet requirements of the "Groundwater Under the Direct

Influence of Surface Water Rule".

The plant was to filter out such possible contamination such as Cryptosporidium and Giardia along with any turbidity during times of heavy rainfall. The 3M filter system could not handle the turbidity without the filters plugging rapidly. The first design was quickly considered a failure and had to be scrapped; the filter plant was then modified with a different type of filtering system. The original distribution system was also completely replaced in the early 1990s.



## A spring, in a secluded park

I have always been fascinated by the springs at Florence as it is somewhat of a mysterious and beautiful place, surrounded by a hardwood forest. It is definitely not the typical public water supply source. The city has made the small area around the springs a secluded park area for the local residents and a few others who are lucky enough to know how to find it. Although the exact details are unknown of the discovery of the springs it is believed that early Native Americans used the area frequently. The area is very interesting not only historically but also geologically; it is one of the largest springs in Kansas. The rock formations and outcroppings are much different in texture and color and seem to be much harder than typical limestone found in other areas of the Flint Hills.

The building that now covers the spring is dated 1949. However it is evident that people were using the spring much earlier than that. Water from the spring had to be pumped to town by some type of steam-driven pump that would have been fired by wood or coal since electrical power before 1920 was not readily available. After 1920 reliable AC current became available in Florence, supplied by Kansas Power & Light.



Pride in the Crystal Springs is displayed in this welcome sign.

It was always somewhat perplexing to me just how they actually captured the water from the spring and sealed it from contamination. Two wells were drilled directly into the fractured rock. When examining the basement of the springhouse, the original two pump bases that sat on top of the large stone formation are visible. The spring was developed for production use by drilling holes into the solid rock and inserting 12-inch cast iron pipes that extend 25 feet down into the fractured rock formation. It appears that a much larger hole may have been drilled originally to form the well, then the 12-inch pipes that are cemented into place at the top forming a nice seal. The original pump location would not meet today's standards due to the local flooding that occurs from time to time. So I concluded from the 1949 date on the springhouse building that the purpose was to accommodate the two pumps. The pump casings were raised above the flood plain in order to prevent direct contamination from floodwater. Excess water flow from the springs is allowed to flow through a relief piping system into the natural stream, which eventually makes its way to the Cottonwood River. The stream and spring flows year round although the flow does diminish during times of drought, according to Mayor Bob Gayle.

A stone monument was erected in 2009 that provides the story of how the spring was utilized by the city of Florence. The history is that Ralph Robinson purchased the property in 1915 and negotiated a deal with the city for a 99-year lease in 1920. The City paid \$10,000 the first year and \$500 annually thereafter. In 1960 Robinson passed, leaving the property to Father Flanagan's Boys' Home of Omaha, Nebraska and the Methodist Home

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for Children in Newton, Kansas. In 1961 John Deforest of Peabody purchased the property; it remains in the family today. According to research done by Mayor Bob Gayle it is believed that Crystal Springs was being used by the city several years prior to the official contract with Robinson. The first private individual to own the land was James D. Riggs. He apparently allowed the city to use the spring and pump the water to town although the details of the arrangement between Riggs and the city are unknown as no official record can ever be located.

The city's lease is up this year. The city and the Deforest family are working together to re-write the lease and come up with an agreement that works for both parties. The Florence case is interesting; the original agreement was made 100 years ago; the city of Florence actually owns the water rights however never actually owned the property. The city was interested in purchasing the property making what one would have considered a very generous offer. However the family was not interested in selling the property and a sales agreement could not be reached. This actually created quite a stir with the town residents for a while and the city decided to pursue another lease agreement.

The water from Crystal Springs rivals any good quality Kansas groundwater and that is primarily due to the

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recharge area having limited human activity consisting of native Flint Hill pastureland. An inorganic analysis reveals the story about the basic water quality, which other than 260 mg/L total hardness considered very common in Kansas; the spring water is quite good at 290 mg/L total dissolved solids. The lack of agricultural chemicals and fertilizers has also been a plus for Crystal Springs although the potential for contamination still does exist and the spring is susceptible. The concern for

Cryptosporidium and Giardia created the need of the filtration plant.

There is nothing magical about spring water as some people might think. It is nothing more than groundwater that flows naturally out of the ground due to an elevated recharge area. However with that being said Crystal Springs at Florence, Kansas has been a dependable source of water for more than 100 years.

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