

Nickerson gets a new water supply

The city of Nickerson, located just northwest of Hutchinson, has installed a new well two miles north of town. The new water supply was developed as an alternative to the high sodium and manganese content of the city's existing water supply wells. I remember Bob Vincent of Ground Water Associates meeting with the Nickerson city council back in the early 1980s to discuss water quality issues and a possible location for a new source. The new well, more than 20 years later, was drilled just where Bob had suggested.

Nickerson has a unique and interesting history. Nickerson was founded by the Atchison, Topeka & Santa Fe Railroad in 1872. The depot was named in honor of

Thomas Nickerson who was at that time president of the company. A section house was built that same year. It was not until 1875 that anyone came to live on the town site. A school was constructed that year. Next, Dr. L. A. Reeves built a two-story structure

and opened a store. These buildings were the original Nickerson town site. In 1878 a new town site was platted on land owned by owned and up to this time farmed by Mr. Sears. Buildings went up within 60 days – including two hotels, a dozen stores, two livery stables, two lumberyards and a printing office. The post office was established in 1873 with Mrs. M. Sears as the

postmistress; it was housed in a little sod house. Later Dr. Reeves was postmaster and kept the office in his store, which he moved to the new town in 1878. A wooden bridge was built across the Arkansas River in 1879. Lodges and churches were established during the 1870s until all the leading ones were represented. The town was established as a third class city in 1879. Original photos from railroad roundhouse and some the original buildings can be viewed at city hall.

Salt and high mineral content are common along the lower Arkansas River basin. High sodium levels have always been a problem. During the 1980s there was a particular problem in one of the city's wells. Well No. 5, which was

quality water could be accessed much more economically. I think at that time the city council was having a difficult time understanding the water quality problems and the cost of the solution of installing a well two miles north of town.

Iron and manganese can cause conditions in a well to deteriorate and result in various water quality issues. Bacteria love the iron and manganese and work on these to create slime, biofilm, and foul odors especially when sulfate-reducing bacteria are present. Staining, dirty water, odors similar to rotten egg caused by hydrogen sulfide gas being produced are not uncommon problems in groundwater in Kansas. The suggested limit for iron is .3 mg/l and .05 mg/l manganese.



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later plugged, was located along one of the old railroad lines in town. Manganese content was extremely high in the water, causing stained and smelly water. Complaints from customers were of brown red or purple colored water and some said the water smelled like sewer or rotten eggs. The city flushed lines regularly to try to reduce the problem. People could just not understand what was wrong with the water. One engineer even suggested that they build an iron and manganese removal plant. Residents should all be glad that didn't happen because much better

When looking for a new water source one of the first things to consider is the geological surveys and local info such as existing wells. Doing so will provide good information as to the type of formation that exists, the saturated thickness and quality concerns. But test drilling and collecting samples is the only sure way of determining what the water quality really is. Test drilling will also provide information as to the potential yield from the well.

Because of the poor quality of water from the city's Well No. 5, it was plugged and an offset (Well

No. 8) was drilled several blocks east. That and feeding phosphates to sequester the iron and manganese seemed to improve the overall water quality to users. Other past problems prior to the 80s in the area of Well No. 5 included traces of carbon tetrachloride. An old grain elevator that was located less than a block west of the well was attributed as the source. In more recent years sodium was an issue of concern in the drinking water supply with levels over twice the suggested limits. The recently constructed well is under the limit

at only 68 mg/l vs. 500 mg/l or more.

Nickerson's new Well No. 9 is rated for up to 600 gallons per minute. A new 10-inch PVC main was installed 5 feet deep in the public right of way for the two miles to the city. All of the crossings were directional bored. The trench was opened with a track hoe. Crossing Bull Creek, the borehole kept filling with water causing it to collapse.

The groundwater is right at the creek level in that area. The groundwater is actually flowing

into the creek. A subsequent problem was hitting a 4-inch line and abandoned service line. Due to saturated soil, a stub pipe from a previous project separated. Before valves could be closed to isolate the problem area, the entire distribution system was drained. A temporary boil order was put into effect until KDHE could be notified the next day and samples could be taken. City crews went door to door late that night to notify people of a temporary boil order until bacteriological samples were taken which latter proved to be negative.

The new pump building is masonry construction the material of choice for pump stations and spacious at 15 x 21 feet inside. Gas chlorination equipment by Regal supplies the chlorine. The pump house also has a Square D variable frequency drive motor controller.

The project was engineered by EBH, Great Bend, Kan. The well was constructed by APAC Shears and Darling Drilling at a cost of \$114,800. The contractor for the pump building and new connections was Middle Creek Corporation, Peabody, Kan. Wayne Costello of COS Equipment, Mulvane, Kan., provided the radio telemetry controls. The project was funded through the Kansas Public Water Supply Loan Fund at a cost of \$255,000 less administrative and engineering. Total cost for the project is \$369,800. In order to pay for the project the water rates will be adjusted in September from the current minimum of \$17.25 to \$22.75 with 2,000 gallons included; the city's rate after 2,000 gallons is \$6.50 per thousand gallons.

Congratulations to Nickerson for their work to improve the quality of their drinking water supply.



Left: The new pumphouse is located two miles north of Nickerson.

Below: Nickerson Operator Earl King points to the new variable frequency drive that controls the operation of the city's new Well No. 9

