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## Water Everywhere

With the new Louisville Water Treatment Plant up and running almost a year, citizens have plenty of crystal clear water for drinking, washing and other uses.

by Patti Jo Peterson, managing editor

Water is the proverbial elixir of life and Louisville's water is now crystal clear with its nearly one-year-old water treatment facility in operation.

The new treatment facility went on-line July 2, 2008.

"It's working fine," said Louisville City Administrator Dan Henry. "The equipment is working like we hoped and the process is working well."

Louisville had struggled with its water supply for several years. Before the 8,500-square-foot treatment plant was built, the town's water had a .54 manganese and a .60 iron content.

"Now there's no detection of iron and between .04 and .06 on manganese," Henry said.

The presence of manganese and iron in water is not a health problem, he explained. In fact, in small quantities it is essential to human health.

Too much of these two elements, however, gives a rusty brown tint to the water and makes it unappetizing to drink.

"It's purely aesthetic," Henry said.

The new plant removes the manganese and iron as well as other contaminants with three-layered Siemens Filters.

The first layer is pea gravel, topped with green sand, then a layer of anthracite coal.

"We inject permanganate into the water, which flocks the manganese and iron into a

big enough particle you can filter it out," Henry said.

The filtered water goes into a storage area underneath so it can be delivered to the new water tower or water system.

In fact, the treatment plant grew out of a need for a new water tower. The aging former tower held 180,000 gallons and was 75 feet high.

"The new tower holds about 400,000 gallons of water and is 152 feet high," Henry said. "It gave us more storage capacity and more water pressure. What determines water pressure is the height of the tower. Every one foot of elevation is .413 pounds of pressure," Henry said.

"Before the plant, the city had a maximum supply of 350 gallons per minute. Now, the capacity is 2,350 gallons per minute and we went from untreated water to treated water."

At the same time the new treatment facility went on-line, two new wells were added to the city's water supply.

"The wells are located on Nebraska Game and Parks land," Henry said. "If it hadn't been for Game and Parks, we couldn't have done this. The city of Louisville did not own any ground where there was that volume of water. We had done test wells and test wells and that was the only place we found that volume of water."

Constructing the plant and adding the wells were big projects for Louisville.

"We had two options: Either do the wells and treatment plant or hook up with the Metropolitan Utilities District, which would be far more expensive than the treatment plant because we would have had to go to Highway 370 with the water lines," Henry said.

With the treatment plant, the city of Louisville was able to sign a contract to sell water to Otoe County Rural Water District. "So we will have some income from it, although it's probably another 18 months for them to buy water on a wholesale basis," Henry said.

The plant was constructed with a 20-year bond. Rate increases handle the bond payment, he said.

Without the new facility, tower and wells, Louisville couldn't handle any more residential, commercial or industrial growth.

"The day before the new system went on-line, the old water system ran 23.5 hours out of a 24-hour day, just to keep up," Henry said. "If anything would have happened, we would have been out of water."

Currently, the new plan is working at about 50 percent of its capacity. "It only operates about four hours a day. There is all sorts of room for growth. If something happens, we have all sorts of capacity," Henry said.

In October 2008, Louisville crews took the new water tower out of service to clean it. "No one even noticed. We just used the plant here to maintain the water pressure and supply," he said. "We feel this plant has redundancy. It would have to be something drastic to put us out of business."