

# City of Courtland Finishes Lagoon Improvements

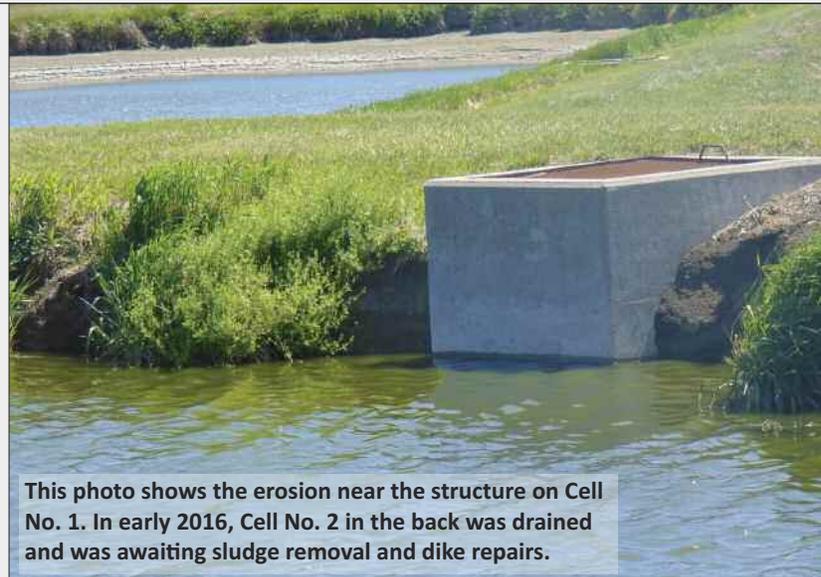
In the June 2017 issue of *The Kansas Lifeline* magazine, I wrote about the city of Courtland, Kan. making improvements to their lagoons by hiring a local contractor and also having some of the work completed by city employees. This is a follow-up to that article. If you are as I sometimes wonder, “What ever happened with ...?”. It was in 2015 that I met with the city of Courtland’s operator, mayor and a council member and discussed maintenance of the lagoon system.

During that 2015 visit, we noted there was a significant amount of erosion occurring on the dikes of all three cells. We discussed reshaping the dikes to the proper slope and to add rock or crushed concrete riprap for erosion control. Sludge removal was also discussed; KRWA completed a sludge profile several weeks later. The measurements indicated a substantial amount of sludge in the first two cells;

no measurements were taken in the third cell due to a rainstorm.

The city council decided to repair the cells and remove the sludge at the same time. The city obtained cost estimates and hired Jensen Ag Service, a local contractor, for the project. Due to the cost, the city budgeted for the repair of one cell per year starting in 2016. This was very acceptable to the contractor. The city offered to provide the materials for the project such as the rock riprap, pipe, and valves. Jensen Ag Service would remove the sludge and reshape the dikes. The city staff would assist with replacing the valves and piping.

The project was stated in late April 2016. KDHE was informed of the project and that Cell No. 3 was going to be out of service and that the city



This photo shows the erosion near the structure on Cell No. 1. In early 2016, Cell No. 2 in the back was drained and was awaiting sludge removal and dike repairs.

would be operating on only two cells. Flow was redirected and Cell No. 3 slowly lowered over the next month. It was necessary to pump the final water to Cell No. 2. It took several months for the cell to be dry enough to allow the contractor to enter to remove the sludge and perform the repairs. That project required about a month's time.

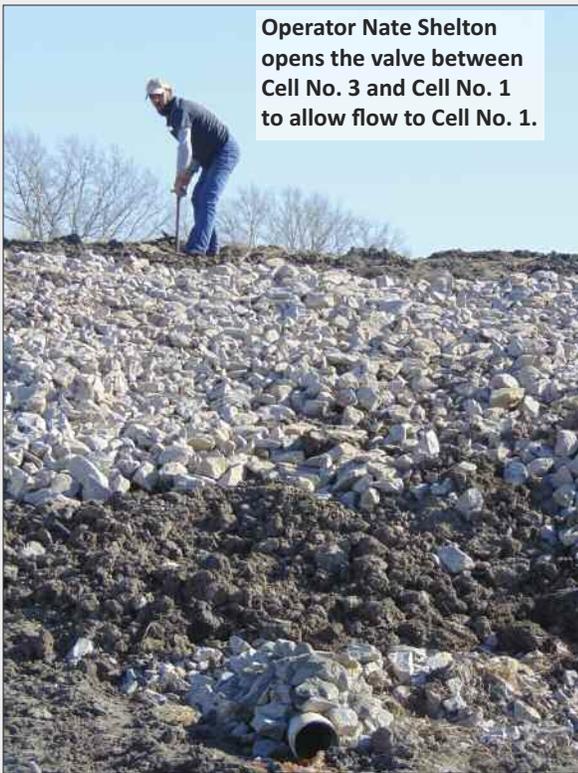
In 2017 no major progress was made on the project because of the numerous rainstorms in the area. In 2018 the city completed Cell No. 2 and Cell No. 1. Cell No. 2 was completed in late spring. The system operated on Cell No. 2 and Cell No. 3 for most of the year. During that time there was never discharge from the lagoons. Cell No. 1 was completed in November 2018 and flow was restored to series operation in late December 2018. There is a drain valve from Cell No. 1 to Cell No. 3, which was opened and water was backflowed through this pipe until the cells equalized in depth. Then the valve was closed and water pumped from Cell No. 3 to Cell No. 1 to increase the level of the cell above the influent pipe to prevent possible freezing and bursting.

## The costs

The cost for the repairs to Cell No. 3 was approximately \$34,000 including materials, such as valves, riprap, some pipe, and work by the contractor. The costs for rehab of Cell No. 2 were higher due to the cell being larger; that cost was nearly \$39,000. The charges



Jensen Ag Service, Courtland, Kan., works at replacing a valve, shaping the dikes, and removing the sludge.



**Operator Nate Shelton opens the valve between Cell No. 3 and Cell No. 1 to allow flow to Cell No. 1.**



**Cell No. 1 was rehabilitated in late 2018; the three-cell system was returned to operating in series.**

for work on Cell No. 1 are not yet available but are estimated to be \$44,000 as more repairs were needed than estimated. The total project cost is approximately \$117,000 to improve and repair the three, 1.3-acre cells. Ten dike banks were repaired. Cell No. 1 and Cell No. 3 are triangle-shaped and Cell No. 2 is rectangular. This equates to almost 3,000 linear feet of dike that was covered with riprap to prevent erosion.

The improvements are quite impressive now that they are completed, especially when comparing photos before and after the work. The city is commended for being proactive and making the

improvements when needed.

I have assisted numerous other wastewater systems. I have provided advice about repairs that should be made. Some take this advice and work to improve their systems. Others, unfortunately, ignore the problem until a letter arrives from the Kansas Dept. of Health and Environment outlining a schedule of compliance to make the repairs or be subject to a fine.

I truly do not understand why the utilities want to wait to make repairs only after a letter from the state is served on them. If your system has issues with a lift station, the collection system, treatment system failures, etc., but cannot afford to pay for the improvement, there are loans and some grants available. Those should be explored and KRWA can provide referrals for you to agencies.

If your system has a project that is being contemplated, I encourage you to attend the KRWA Annual Conference March 26 – 28. There are sessions that are designed for mayors, council members, board members, managers, operators and others. Take a look at the conference program that is reprinted in this issue. One of the preconference sessions will be presented by Carl Brown; it is entitled “Excuse Me, Do You Know the Way to Great Rates?” There are also concurrent sessions that review funding for water and wastewater systems. Those will be presented by the Kansas Department of Health and Environment, Kansas Department of Commerce and USDA Rural Development.



**Operator Nate Shelton secures the staff gauge he made to the end of discharge pipe in Cell No. 1.**

*Charlie Schwindamann has been Wastewater Tech at KRWA since September 1999. Charlie holds Class II Water and Class I Wastewater Operator certification. He is a member of the Marysville, Kansas city council.*

