

Town of Rockford

Thinking Outside of the Box

Introduction

Working with a small community to upgrade its wastewater system is always a challenge. It requires being creative about financing and designing, and it requires flexibility by the regulator and a lot of thinking outside of the box. When the town of Rockford's primary pond liner failed shortly after they upgraded its wastewater system, the challenges got even bigger.



Problem

The town of Rockford is located approximately 16 miles south of Spokane in Spokane County. The town completed an upgrade of its wastewater system in November 2003. Improvements included adding a storage lagoon, excavating and lining the two existing wastewater ponds, and adding ultraviolet disinfection. In March 2004, the liner in the primary pond (Pond 1) rose up in several places due to gas under the liner. The gas was caused by ground water under the liner mixing with organic material that was not fully excavated. The liner became tangled in the aerator propellers and was ripped open in several spots, allowing raw wastewater to run under the liner. This caused a potential for contamination of ground water and surface water since the ponds are located near Rock Creek.

The project



Liner under the lagoon

Cynthia Wall, Ecology facility manager; Kim Sherwood, Ecology engineer; Wayne Peterson, Ecology hydrogeologist; the town and its consultant Jon Galow at Thomas, Dean & Hoskins (TD&H) began to explore ways to fix the problem. Cynthia asked the town to rent a pump and begin pumping wastewater from Pond 1 to Pond 2 so the liner bottom could be examined to determine the extent of the damage. With the pond empty, we could see multiple places where the liner had bubbled, resulting in tears from the aerator propellers. Because the source of the water under the liner was unidentified at the time, the town could not proceed with a correction plan. The pond was left

empty for the summer while we tried to identify the source of the water. Cynthia talked with the different state and federal funding agencies about money for repairing the pond. Since the town had already obtained a loan to upgrade their wastewater plant in 2003 they lacked funds to pay for the repair, and utility rates had already been raised to cover the cost of the existing loan. To allow time to evaluate funding options, Cynthia let the town wait until the next spring to begin work on repairs.

In March 2005, Paul Sifford, Rockford's public works director, informed Cynthia that although the pond had been pumped dry and Spokane County had experienced a severe lack of precipitation, there were 11 inches of water in Pond 1. There was concern that perhaps the main pipe that carries the raw wastewater to the ponds might be leaking. To eliminate that concern, Cynthia coordinated with Ecology's Environmental Assessment Program to obtain a dye that would be introduced into the manhole upstream of the ponds. Inspection with a fluorometer showed no dye in Pond 1, so we concluded that the water in the pond was ground water coming up through the tears in the liner. TD&H began working on design for an underdrain system that would



collect water from under the liner to be pumped elsewhere. A preliminary plan was made to leave the pond empty until the fall to allow the ground under the liner to dry out. After the engineering design was completed, it appeared the cost of the project would be about \$100,000. The town asked Cynthia for time to seek funding so the pond sat offline for one more winter. In the spring, as we started to discuss funding and starting the project, Mayor Ed Baune became very ill and was unable to continue as mayor. In light of the changes in leadership and council, Cynthia felt it would be appropriate to give the town some time to regroup and get on its feet.

In the fall of 2006, the town approached Ecology and asked permission to install an underdrain with town funding and labor. TD&H provided an engineering design and the town hired S & L Underground to excavate the ground to prepare it for an underdrain. Due to the time of year the project began, everyone knew there was a limited timeframe for completing the project. S & L Underground came in on a Monday and worked steadily – even working Saturday into the evening to finish the project. Paul did much of the work himself. He laid gravel in the excavated area, constructed all the piping for the underdrain system, excavated an area, and installed a concrete vault to house the pump. He also bought and delivered all the materials to the jobsite for the contractor. He spent approximately two weeks of time getting the project completed while staying in close contact with Ecology and the town's consultant. When the underdrain was installed, Ecology staff and TD&H staff inspected the work and gave permission for the town to have the liner repaired. The underdrain system went online in October 2006. After initially discharging to the storage lagoon while testing was conducted to ensure there were no leaks, the town was given permission to discharge to Rock Creek. In the first 395 days of operation, the underdrain pumped 1,258,000 gallons of water from under the liner.

Project highlights

Everyone worked very hard to make this project a success. The town took initiative to repair the pond at its own expense and time. The consultant, TD&H, provided all the engineering support and documents at its expense. The consultant was always available for meetings on the project. Ecology employees spent many hours working with both the town and the consultant to brainstorm a workable and cost-effective fix. We helped a small community get its wastewater plant back in working order without causing financial hardship. This is a great example of local and state government and private business working together to find a successful and financially reasonable solution to a problem.



Underdrain piping

Partners

Town of Rockford

Paul Sifford, Director of Public Works
Ed Baune, Former Mayor
Mayor Gary Wagner & Council

Thomas, Dean & Hoskins

Department of Ecology

Cynthia Wall, Facility Manager
Kim Sherwood, Engineer
Wayne Peterson, Hydrogeologist

Funding

The project was funded entirely by the town of Rockford for a total cost of \$30,962.51. TD&H supplied its engineering skills and paid for the pump rental at no additional cost to the town.

For more information

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