Serving Kenosha
Since 1895

UTILI GRAM

"Providing and Protecting Kenosha's Greatest Natural Resource...Water"

May/June 2007

New Lake Discovered

Recently, a local resident on the hunt for fresh asparagus near the Hwy 158 UPRR overpass came across a small lake that he had never encountered before. Being unsure of the exact cause of this strange phenomenon, he was astute enough to report his finding to the City Streets Division, who in turn notified the Water Utility. Upon further investigation, the Water Utility concluded that this strange occurrence had less to do with the mysterious ways of Mother Nature and more to do with a 16-inch water transmission main running through the area.

Water Utility employees look on as backfill material is being lowered down the embankment.

When a water leak is first discovered, normally by the telltale signs of water bubbling up to the surface in a given location, it can take the repair crew several hours to pinpoint the exact location of the leak. It is important to pinpoint the exact location of the water leak in order to minimize the amount of digging required to expose and make repairs to the water main. More importantly, the smaller the excavation, the less impact there is to surroundings and the easier it is to restore the site to its original condition. In this situation, not only was it a cinch to pinpoint the location of the water leak, but most of the soil surrounding the water pipe had already been washed away by the force of the water spewing from the opening in the water pipe. This greatly reduced the amount of digging that would normally have been required to repair a leak in a water main of this size.

The Water Utility is not certain how long this water main had been leaking; although prior to its discovery, the Water Production Plant had reported a faster-than-normal drawdown of the elevated water storage tanks feeding this pressure zone. At that time, a thorough search of the area was performed, but no main break was discovered. Since the location of the main break was right next to the highway overpass, it could not be seen from the road. Had it not been for a local resident's hankering for the taste of fresh asparagus, there is no telling how long it would have taken to discover this water leak.

Being surrounded on three sides by the highway overpass, the UPRR tracks and a large stand of trees, and the only somewhat passable opening having been made into a swamp by the water runoff from the leak, it was virtually impossible to get any large piece of equipment into the site. With some difficulty, an operator from Midwest Construction, Inc. was able to navigate a creek with a track excavator; however there was no way to get a dump truck close enough to deliver the large amount of backfill that would be required to fill in the hole. This required Water Utility supervisors to put their heads together and come up with an ingenious method of delivering backfill to the site. To accomplish this feat, arrangements were made to block off one lane of the Hwy 158 overpass. A special conveyer system was brought in to transport backfill materials from the highway over the side of the overpass and down the embankment to the location of the hole. This whole evolution from start to finish was completed in an amazingly short amount of time.

When it comes to the Utility's Water Distribution and Sewer Collection Division, one might say that the difficult they do easily, while the impossible takes just a little bit longer. This is one such situation where they performed a very difficult task and made it look as if it was just another routine repair job. Well done!

the daily grind

Tunnel surface after several coats of paint have been ground away.

For the past several weeks, a group of painters representing Porta-Painting, Inc. have been slowly grinding away at the painted surfaces inside the utility tunnels at the Wastewater Treatment Plant. This extremely tedious and time consuming process has come to be known as "the daily grind" by all those associated with the project.

Over the years, the utility tunnels at the Wastewater Treatment Plant have received numerous coats of paint. Since the climate in these tunnels remains very damp for most of the year, paint does not adhere well to the concrete substrate. As a result, it doesn't take long for a newly painted surface to begin to spall and flake, thereby causing large paint chips to fall from the ceilings and walls—eventually finding their way into the floor drains. This is a constant maintenance headache for plant operators. In the past, walls were scraped and wire-brushed to remove the flaking paint chips and then a fresh new coat of paint would be applied—only to have the same situation occur in a very short amount of time.

This time the Wastewater Treatment Plant decided to try a different approach. Instead of prepping and repainting the concrete surfaces, the decision was made to remove the paint altogether. To determine the feasibility of removing the paint from all of the utility tunnels, a purchase order was issued to a paint removal contractor to have them test several different paint removal techniques and determine which removal method would produce the best overall results and was the most economical to perform. Removal methods included wet sandblast, mechanical paint removal (i.e., grinding, chipping), and chemical stripping. From this demonstration, it appeared that wet sandblasting was the best overall method of removing the paint from the concrete surfaces. A contract was prepared to include this procedure and the paint removal process was begun.

The contractor's first attempt at paint removal consisted of a wet sandblast method comprised of lots of sand and very little water. Although this process did a great job of removing the paint, the enormous cloud of dust generated by the process made it virtually impossible to see or breath inside the utility tunnels without some sort of special breathing apparatus. The contractor then attempted to remove the paint using various chemical strippers. This process did a good job of removing the top layer of paint; however the remaining 99 layers of paint were unaffected by the process. Additionally, the odors generated by the process were so severe that nobody could enter the utility tunnels with exception of the Assistant General Manager, who had a head cold at the time and couldn't smell a thing. The contractor then attempted another wet-sandblast process—this time small amounts of sand combined with lots of high pressure water. This process also yielded good results; however the contractor had difficulty getting their equipment to feed the blasting sand into the high pressure water stream in proper proportion.

While taking time out to fine tune their equipment, the contractor decided to employ paint grinders to at least get some of the paint removal process started. This turned out to be the best method of all for removing the paint. As can be seen from the photograph to the left, this process leaves behind a very acceptable concrete surface, as opposed to the blasting process that tends to cause a lot more scouring of the concrete. In spite of the fact that most of us may be retired by the time the contractor finishes grinding all the paint from the utility tunnels, the end-product is very good. Actually, the contractor is making good progress and should finish in a few more weeks.

Parking Lot Pumps Replaced

The pumps commonly referred to as the parking lot pumps are located on the east end of the parking lot for the Water Production Plant. Backwash water from the sand filters and the membrane filters flows into a large concrete basin located beneath the foot of the parking lot. Depending on operations at the Production Plant (i.e., sand filter and membrane filter units backwashing concurrently), it can take up to four of these pumps to pump this water out of the concrete basin and into the sanitary sewer collection system.

Up until a couple of years ago, operators at the plant never really paid much attention to this particular part of the water filtration process, except for the couple times a year when the concrete basin would get drained down and flushed out. Renovations were completed to the Water Production Plant in 1999 when the new micro-filtration units were added. In conjunction with renovations, all the pumps in the concrete basin were replaced in 1998. As with all things, these pumps have now reached the end of their useful service life, and one by one they have begun to fail over the last couple of years. Without the ability to drain down the parking lot

Employees endure harsh weather and a tight working space to install the new parking lot pumps.

basin, the decision has to be made to shut off the micro-filtration units and to avoid backwashing the sand filters. Otherwise the backwash water will overflow the basin and flow onto the parking lot. Shutting off the micro-filtration units and not backwashing the sand filters will buy the Utility a little bit of time, assuming that water usage throughout the service area is low and all of the above-ground storage tanks have recently been topped off. Sooner or later however, the Water Production Plant needs to start filtering water in sufficient quantities to meet the online demands of the water customers. For this reason, water plant operators get a little bit nervous when the parking lot pumps are unable to keep up with the backwash water flowing into the basin.

Looking ahead, the decision was made to start replacing the aging parking lot pumps. Replacing the pumps in-kind proved to be a very costly venture. Additionally, the Engineering Division determined that the existing pumps were not the best fit for the existing performance criteria and were not operating at optimum efficiency. New pumps were selected to more closely match the performance criteria. Furthermore, the cost of these pumps was less than the cost for replacing the pumps in-kind from the original manufacturer. One of the new pumps is depicted in the photograph above.

Prior to ordering the new pumps, careful measurements of the concrete basin and its openings were made to ensure that the pumps would fit properly. As a result, the openings to the concrete vault had to be enlarged slightly and the rail system holding the pumps in-place had to be completely replaced. Initially, only two pumps were replaced, so that they could be tested to ensure that they were up to the task. Once it was determined that the pumps were performing satisfactorily, two additional pumps were placed on order.

The two new pumps have recently arrived and have been installed by the mechanics and electricians from the Wastewater Treatment Plant. Now that these pumps are installed, all of the water plant operators are able to breath a little bit easier, and our Director of Water Production Division, is able to sleep better at night.

Service with a Smile

Recently, a new charge for storm water handling was added to the water bills. Although the Water Utility is only acting as the billing and collecting agent for this new fee, and all revenues that are generated go directly to the City's Storm Water Utility, the Utility has nevertheless received numerous calls from City residents who are less than excited about the new change to their water bills.

When customers in the first billing district began receiving their water bills, a flood of telephone calls was received by Customer Service. Additionally, a large number of customers opted to stop by the Water Centre to voice their displeasure in person. The following month, when bills for customers in the second billing district began arriving, the same sort of occurrences happened all over again. This was in addition to heated e-mails and the occasional undeserved critique in the Kenosha News. Prior to the bills being sent out, numerous hours had to be expended by Customer Services just to figure out how to accurately merge the Storm Utility billing information with the Water Utility billing information.

Throughout it all of Customer Services has been extremely courteous and professional. When a customer voices a complaint about the new storm water fee, they are politely referred to representatives of the Storm Water Utility. Although they may not be happy with the new fee, at least they are courteously referred to somebody who is better able to address their concerns.

Summer is here! Enjoy it while it lasts.