



Required Capital Improvements to your wastewater treatment plant

OPEN HOUSE to LEARN MORE

November 8, 2012

3:30 – 5:00 OR 6:30 – 8:00 pm

GENOA TOWNSHIP HALL

The Oak Pointe Wastewater Treatment Plant (WWTP), located at the intersection of Brighton Road and Oak Pointe Drive, treats and discharges wastewater collected from homes in the North Shore, Tri-Lakes, and Oak Pointe communities. The plant utilizes a biological treatment process to remove pollutants (organics, phosphorous, and nitrogen). The treated wastewater is discharged to two basins where the water rapidly infiltrates into the ground water. This provides additional filtration and nutrient uptake before the treated wastewater ultimately ends up in an aquifer. This aquifer is a drinking water source for private residential wells.

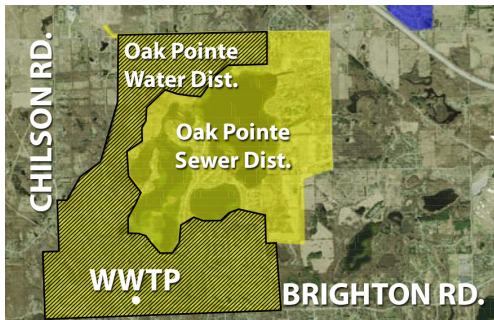


Figure 1: Solid yellow area - service boundary of the Oak Pointe Wastewater System. Hatched yellow area - also serviced by municipal water.

The Problem

Because the Oak Pointe WWTP discharges to groundwater, there are more stringent standards for certain parameters, especially sodium and chloride. **The problem is that the wastewater system your house is connected to has not been in compliance for sodium and chloride for more than 13 years.** In other words, the Oak Pointe WWTP is contaminating the local groundwater with sodium and chloride. The source of the contamination is from the improper use of water

softeners by some homes and businesses connected to the Oak Pointe System.



Figure 2: The area impacted by high sodium and chloride levels from the WWTP is shown in brown.

The environmental impact is concerning, but so is the potential financial impact to the system users. Due to the contamination, we are regulated by the State of Michigan and must complete groundwater sampling and remediation efforts to track the plume and protect drinking water supplies. To date, Oak Pointe has spent \$600,000 on efforts to identify the area of contamination and make drinking water safe for those affected.

History

Oak Pointe became regulated for the discharge of sodium and chloride in 1999 by the State. The initial efforts by the Township to achieve compliance included adopting a water softener ordinance (requiring potassium chloride use), public education, and implementing a water softener inspection program. The Township focused efforts on gaining compliance through water softener regulations from 2000-2004, resulting in regular compliance for only two consecutive months during this four-year period. As a result, the program was deemed ineffective in 2004 as a method to achieve long-term compliance. It became apparent that gaining compliance through

water softener inspections would require adopting an enforcement ordinance, regularly inspecting individual homes, and significant fines for improper use. The Township was apprehensive about implementing a policy that required constant inspection of private homes and fines, and therefore began to investigate alternatives. Following is a summary of the evaluation completed to address this issue.

From 2004-2005, the Township evaluated taking the plant off-line, converting to a surface water plant, deep well injection, or providing municipally softened water. Ultimately the Township identified a main goal of abandoning the groundwater discharge at Oak Pointe WWTP, which would permanently solve the sodium and chloride contamination problem. The preferred option was to re-route wastewater from Oak Pointe to the Genoa Oceola WWTP, located approximately 5 miles away. **From 2005-2008**, the Township established a special assessment district for a proposed development to fund the improvement. It appeared that this new growth would provide the funding to perform the improvement. Unfortunately, **from 2008-2010**, the system had to deal with the housing market collapse. Project funding disappeared and the Township applied for federal grants through the Army Corps of Engineers and our local Congressman and Senator; however, we were unsuccessful in obtaining outside funding. **From 2011-2012**, the problem became worse due to increasing potassium chloride prices. This resulted in further non-compliance as sodium and chloride concentrations rose nearly to twice our permissible limit.

As a result of these increasing concentrations and lack of voluntary compliance, we are now required to make an improvement to prevent further groundwater contamination.

Corrective Action Options

As a result of this requirement to correct the problem, the past year Township staff has re-evaluated the feasibility of several options regarding potential solutions.

The top three are highlighted below:

1. **Strong Enforcement of Potassium Chloride.** The first option is to expand the program to have the Township deliver potassium chloride to each home, perform annual inspections, and increase the ordinance language to issue violation fines. This option would also require an upgrade to the WWTP.
2. **Consolidation with a Surface Water Discharge Plant.** The preferred option continues to be re-routing wastewater from Oak Pointe to the Genoa Oceola WWTP. The conceptual cost estimate for this project is around \$5,000,000. This is a permanent fix that consolidates WWTPs within Genoa Township.
3. **Softened Water at Oak Pointe.** It makes sense that if softened municipal water is provided to the system users, individual water softeners could be eliminated and our problem might go away. However, as shown in Figure 2, only 1,000 of the 1,400 total sanitary sewer users are also connected to the Oak Pointe municipal water system. Calculations showed that sodium and

chloride concentrations would still exceed those permitted by the State of Michigan.

Funding Necessary Improvements

As previously stated, the option of relying on voluntary compliance is no longer feasible, and significant liability and financial impacts can occur if the problem is not addressed.

With development and outside grant sources unavailable, these costs must be bore by the system users. However, the Township is pleased to announce that the projected cost per user is more economical than continued mandating of potassium chloride use.

To fund option 2, the project cost per user is \$25 per month, which is less than the cost of continued potassium chloride use. For the average customer currently using potassium chloride, funding this improvement can be covered by the savings of switching back to sodium-based softener salt.



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Important Information Enclosed

Oak Pointe Wastewater Treatment Plant

Financial Comparison of Options 1 and 2

Cost Category	OPTION #1 Mandate Potassium Chloride Use in Water Softeners	OPTION #2 OP WWTP Offline, Route to GO WWTP (1)
Existing Annual O&M Costs (2)	\$430	\$430
Salt Charges Salt Charges (3)	\$375	\$75
Compliance and Enforcement Charge (4)	\$53	\$0
Capital Charge - OP WWTP Upgrades (5)	\$80	\$0
Capital Charge - Route Flow to GO WWTP & WWTP Upgrades (6)	\$0	\$300
Total	\$938	\$805
Minus Current Cost for Residents (Sum of Green Boxes)	-\$805	-\$805
Net Annual Increase for Each Program	\$133	\$0

NOTES

1. Oak Pointe (OP); Genoa Oceola (GO)
2. Current Rate = \$5.98/ 1,000 gallons Assume 18,000 gallon/ quarter/ residential home
3. Assumes 15 bags/year/ home. \$5/ bag for sodium-based salt, \$25/ bag for potassium-based salt
4. Assumes \$75,000/year for cost of enforcement over 1,400 users
5. WWTP upgrades estimated at approximately \$1.4M financed over 20 years with 6% interest rate, 1,400 users
6. Total preliminary project cost estimated at \$5M, financed over 20 years with 6% interest rate, 1,400 users

Based on our conceptual project cost estimates, we project a net annual impact to the average user **currently in compliance** with our water softener ordinance at \$0. It should be noted that we are in the initial stages of this project, and the Township is continuously working to lower the total project cost.

Learn More

If you would like to learn more about this proposed wastewater improvement project, we will be hosting an informational open house on **Thursday, November 8, 2012**. We are hosting two open houses at Genoa Township Hall, located at 2911 Dorr Road: the first from 3:30 – 5:00 pm and the second from 6:30 – 8:00 pm.