Memorandum

To:	Northwestern Lancaster County Authority and Penn Township	Date:	4/16/18
From:	Mark L. Homan, P.E.		
Project Name:	General Engineering	Project Number:	18-103-03
Subject:	Non-Residential Waste Program		
Copy To:			

The upgrade of the Northwestern Lancaster County Authority Waste Water Treatment Plant (WWTP) included the use of several design parameters to properly size the treatment equipment. For example, the influent design parameter for organic loading (BOD5) was conservatively selected to be 325 mg/l. The treatment equipment was then designed to treat this influent concentration (strength of waste) to produce an effluent of 25 mg/l or less. The effluent limits are established to meet the Pennsylvania Department of Environmental Protection (PADEP) requirements for discharging the effluent to the stream. The organic influent concentration at the WWTP increased significantly in 2017. The influent concentration in 2016 was 261 mg/l. The concentration increased to 339 mg/l in 2017. Although that concentration exceeds the design influent concentration, the WWTP is currently performing well. Since the flows to the WWTP are less than the influent design flow of 650,000 gallons per day, this allows the treatment equipment to properly treat the increased strengths of waste. However, as flows to the WWTP increase with future development, the various strengths of waste will have more impact regarding the effectiveness of the treatment capabilities of the plant.

There is a cost to the operation of the plant to treat higher strengths of waste, just as there are higher costs to treat higher influent flows to the plant due to inflow and infiltration. All costs of operating the plant are affected by higher strengths of waste. A few of these include maintenance, chemical, sludge hauling and utility costs to operate the plant. Since the current Township and Authority Rules and Regulations with respect to non-residential waste characteristics has not been revised since the 1980's, Becker Engineering recommends the Township/Authority consider the following to recuperate the extra costs necessary to treat high strength wastes at the WWTP from those customers discharging high strength waste:

- The Township Ordinance should be updated to address the issues indicated above. There are several conditions in the current ordinance that are out of date. For instance, the BOD5 limit for customers is currently limited to 200 mg/l which is too low. It is our opinion that this low limit would be difficult to defend if challenged. Becker Engineering recommends a level of 250 mg/l to 275 mg/l.

- Develop a Non-Residential Waste Questionnaire that all non-residential customers of the Authority would complete and provide to the Township/Authority. This would identify customers who do or do not contribute non-residential waste to the WWTP. A letter would be mailed with the

questionnaire to these customers explaining the impact that higher strengths of waste have on WWTP operating costs. The letter would also explain the imposition of surcharge fees on customers with high strength waste to reduce the higher costs associated with the increased operating expenses of the WWTP and provide a timeline for expected compliance.

- Based on the questionnaire, all customers that contribute non-residential waste to the WWTP would be required to complete a Non-Residential Waste Application. This would identify certain high strength waste that could potentially be included in the sanitary sewer flows from that customer that would affect the WWTP operating costs.
- Depending on the responses to the questions in the Application, a Non-Residential Waste Permit would be generated for that customer if needed. The Permit would include limits on certain parameters including flows and strength of waste and would also require quarterly composite sampling for the parameters identified in the Permit.
- Surcharge fees should be developed based on the actual costs of treating certain waste characteristics at the WWTP. These fees would be incorporated into any updated Township/Authority Rules and Regulations.
- A program should be initiated to identify all customers (existing and future) with grease interceptors and/or other pre-treatment facilities. Grease interceptors would be monitored to verify that the grease interceptor is being properly maintained on a routine basis. This would ensure that the grease interceptors are operating correctly and not sending high strength waste to the WWTP.

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