

# SEWER ADMINISTRATORS REPORT LELAND TOWNSHIP SEWER SYSTEM February 2021

Prepared by Steve Patmore, Sewer Administrator  
For March 2021 Meetings

The influent levels for February 2021 continued the seasonal downward trend and were 5% lower than the influent flows in February 2020, and 10% lower than last month. Flows are monitored weekly.

Effluent flows are being managed to be at our allowable discharge rate in order to lower the lagoon level for Spring 2021 sludge removal at the lagoon.

The lagoon is now 2.5 feet lower than it was at this time last year, and 16" lower than last month.

Monitor wells had the quarterly samples taken in February, and the quarterly average phosphorous results show a leveling off over the past year. The average of the four compliance wells was 0.84 ppm. The target for compliance is 0.5 ppm. In 2017 the average was over 1.60, or double what the average is today.

## **SEWER OPERATIONS (IAI report attached)**

- The Sludge Pump nuisance alarm issue was solved by working with the manufacturers Engineer. The Penn Valley Pump Rep will be at the WWTP in March for a follow-up.
- February was a relatively quiet month for call-outs. All call-outs were for minor issues.
- Aerator at WWTP lagoon tripped breaker – will be looked at.
- Commercial septic tank for restaurant at 104 Main in Lake Leelanau was pumped – lack of use in the past contributed to solids build-up.
- One odor complaint – turned out to be a bad toilet seal.

## **OTHER ON-GOING PROJECTS / MAINTENANCE / REPAIRS**

- IAI is monitoring the Hydrogen Sulfide levels at the lift stations – treatment equipment to be installed at Thompson Street Lift Station soon.
- Planning for spring 2021 lagoon sludge pumping – Township Board approved contract with Biotech.
- Septic Tank Annual Pumping.
- WWTP Dosing Station repair work plan for period that WWTP lagoon is empty.

## **SYSTEM ADMINISTRATION**

- Questions on connections and the sewer system.
- Miss Dig staking requests picking up.
- Sewer Connection on Chandler Street for new house.
- Township Board workshop on sewer budgets.





**INFRASTRUCTURE  
ALTERNATIVES, INC.**

**Leland Township WWTP Operations Report**

February 2021

Prepared by Lin Marolf, Operations Specialist  
For March 2021 Sewer Commission Meeting

**Operations Summary:**

- Freeboard is within target range
- Biotech Agronomics Inc., has been awarded the bid for lagoon dredging. We are waiting on the announced date they will begin work.
- Aerators #2 was turned off on 2/3/21 due to ice buildup. Aerator #1 was breaker was turned off on 2/20/21 due to breaker tripping. Aerators #3 and 4 are still running.
- H2S pilot study is in process with weekly sampling.
  - Only Popp and Duck Lake lift stations are showing measurements. Popp lift shows an average of **110 ppm** with a high of 135 ppm and a low of 91 ppm. Duck Lake lift shows an average of **26 ppm** with a high of 38 ppm and a low of 15 ppm.
- H2S implementation proposal plan is in progress. Please see the attached proposal. Would like to move forward with purchasing needed items mentioned in the proposal at the earliest convenience of March.
- Spoke with Steve Truitta mechanical Engineer from Penn Valley Pump regarding the sludge pump failing to start and tripping the breaker. After sending him a video of the pump starting, he walked me through a procedure of adding air to the pressure gauges and clearing possible sludge buildup. Once completed, the pump no longer starts hard and does not trip the breaker. This procedure may need to be done periodically to eliminate the sludge buildup in the cylinders.
- New Flow gauge was installed at the discharge of the sludge pump.
- Lin and Tom gathered monitoring well samples from upgradient and down gradient wells as well as effluent flow and submitted to SOS for analysis. Resampling was completed on the down gradient wells as required and sent to SOS.
- Four call outs for the month



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**Totals:**

|                 | January 2021 | February 2021 | Year to Date | Units |
|-----------------|--------------|---------------|--------------|-------|
| Effluent        | 2.72         | 2.20          | 4.92         | MG    |
| Influent        | 1.61         | 1.45          | 3.06         | MG    |
| Freeboard       | -2.1         | -1.3          | - 3.4        | FT    |
| Propane         | 215          | 215           | 430          | GAL   |
| Ferric Chloride | *123.00      | 117.41        | 240.41       | GAL   |
| Electric        | 10832        | 7737          | 18,569       | KWH   |

**\*Estimate Only**

**Call-outs:**

|           |                              |   |
|-----------|------------------------------|---|
| 2/01/2021 | Thompson St. Lift,<br>Leland | Low Temp alarm. Reset, and turned heater fan on   |
| 2/08/2021 | WWTP                         | Sludge pump fail to start, reset, all clear   |
| 2/18/2021 | WWTP                         | Aerator #1 tripped breaker, reset and started running again   |
| 2/20/2021 | WWTP                         | Aerator #1 tripped breaker again and this time turned the breaker off. Will turn it back on once the ice melts in the lagoon. |

FROM IAI 3/4/2021

## H2S Treatment Plan Work Scope and Supply List

\*\*\*The following is a general plan to implement the pilot study suggested in 2019 to treat odor along the Leland wastewater collection system. It is by no means all inclusive. Exact equipment and supplies may vary from the ones presented here. This is to provide you with an understanding of the set-up and costs involved to implement the treatment plan.

The chemical Calcium Nitrate has been a proven supplement to anaerobic collection systems over the years to treat H2S. It has a history of positive results with low impact to water treatment variables added by its introduction into the system.

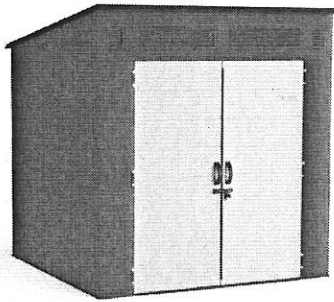
I have been in close contact with IAI's Ray Galovich who has vast knowledge and experience in implementing Calcium Nitrate treatment at other facilities. He has had great success in reducing the levels of H2S at those facilities and they continue to operate today using the same type of systems. He has supplied us with recommendations for the type of pump, the rate at which to apply the calcium nitrate and advice on which suppliers to use. Mr. Galovich's recommendations are to initially saturate the system with Calcium Nitrate while monitoring the H2S ppm levels. As the oxygen is starved, the H2S levels will become lower over a short time and much lower quantities of chemical will be required, making it more cost effective. The benefits will be a system that contains a much lower level of H2S. This will help control odor and be much healthier for the public. This will also help the mechanical and structural devices throughout the system last much longer and will reduce the need for repairs.

The plan is to treat the Thompson St. L.S. by means of dosing the wet well daily with Calcium Nitrate. This will include installing a storage shed next to the L.S. that encloses the calcium nitrate and the pump.

Below are the essential pieces needed to start the project. The shed is large enough to fit a 330gal tote and all other components. This allows us to secure the entire operation for public safety and adverse weather conditions. The tote will be used as a day tank, and will need to be filled periodically from a mobile reservoir. A small transfer pump will be needed to transfer the Calcium Nitrate from the mobile tank, to the day tank. A chemical feed pump will also be mounted inside shed. This pump meters the chemical being added internally and is adjustable. In addition to the chemical feed set-up, spill containment supplies and safety PPE will also be stored inside shed and will remain onsite for the duration. A padlock will secure the shed from unauthorized entry, and a copy of the key will be kept inside the lift station's electrical cabinet. An electric supply will run to the shed from the lift station's MCC with a simple extension cord and surge protection.

Chemical feed tubing will run from the shed to the wet well. It will be enclosed within conduit to protect from environmental hazards and public safety. The Conduit will then be tapped into wet well lid with a secured fitting. The Calcium Nitrate is readily available through a well-known supplier (Haviland) out of Grand Rapids. It is available to us in 55 gallon barrels. The treatment plan is **initially** estimated to use up to 50 gallons per day (350gal/wk). Once the system is saturated and data from the odor loggers indicate low levels of H<sub>2</sub>S, the plan would call for reducing the flow of Calcium Nitrate.

Storage shed to hold; chemical container, chemical pump, spill containment supplies, etc.



Suncast® Defender 7 x 7 Storage Shed  
\$799.99 – Menards

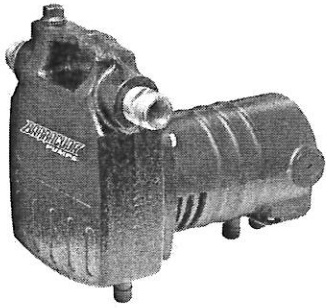
Calcium Nitrate Feed Pump



Watson Marlo QDOS 30 Includes shipping, comes with extra head, fitting kit, tubing and contains sensaphone warning capabilities

\$2200 – Matoon and Lee Equipment

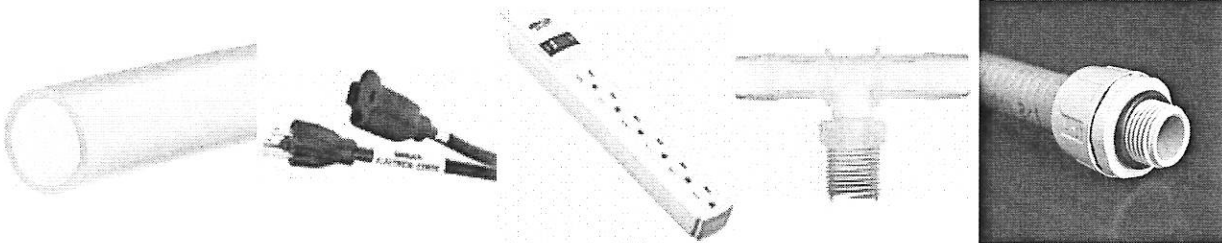
## Transfer Pump



Barracuda ½ HP Cast Iron Transfer Pump with garden hose hookup

\$89.99 – Menards

## Electrical supplies, Tubing, Fittings, Conduit



\$80.00-\$120.00 – Bunek's Hardware

## 2 Empty Totes/1 tote=220gal/1 tote=330gal



H003064 Totes for transferring and storing calcium nitrate

\$200 Each (\$400.00) – Haviland Products Company



### Calcium Nitrate Solution



Initial order of 7 barrels (55gal each) totaling 385 gallons allows for up to 50 gallons of treatment daily over a 7-day period.

\$1906.00= (7 / 55gallon totes @\$4.95 per gallon) - Haviland Chemical

### Wesco Barrel Drum Truck



For moving and storing 55 gallon barrels at the plant.

\$319.00 – Global Industrial

**Estimated Total for all equipment and supplies = \$5835.00**

\*Labor costs in addition to equipment and supplies ballpark figured to \$1400.00

\*\*Labor to include; Set-up, Operation, Data Collection/Analysis, and Full-Scale Cost Analysis