

## **Visit to TriTown Septage Facility, Orleans, MA , February 17, 2010**

Guest article by Jane Corlette, Orleans

Members of the League met on Wednesday morning, February 17 at the TriTown septage facility on Overland Road in Orleans. Mr. Jay Burgess, Manager of the facility, graciously explained the history of the facility and during a thorough tour, explained its operations and capabilities.

The TriTown facility is jointly owned by the towns of Brewster, Eastham and Orleans but the land on which it is sited is owned wholly by Orleans. It began operations in 1989 after licensure from the State of Massachusetts. Licenses are renewed every five years and the current license will expire in 2013. It opened as a state-of-the-art facility although subsequent problems, some unanticipated, required an upgrade in 1997. The upgrade included additional technology to reduce excess liquid from septage and a change in tanks to deal with contaminants.

The facility is a small complex of buildings off Route 6A in an industrial zoned area. While within the plant there are some areas that have some odor of human waste, these areas are subject to negative pressure from the HVAC system and the air passes through a wet scrubber and a mist of hypochlorite before being passed through carbon filters and released to the outside. From the exterior of the building, there is no perceptible odor.

The facility treats septage (the product of human wastes from cesspools and septic systems) that is pumped by individual contractors and brought to the plant for treatment as well as the solid wastes from small centralized sewer systems for resorts and housing complexes. It accepts septage not only from the three towns that own the facility but also from other Cape towns for a fee. The plant is financially self-sufficient and maintains a small capital budget for necessary repairs and upgrades.

Because the facility is limited under its license to a release of no more than 45 thousand gallons of treated wastewater per day, it attempts to encourage homeowners to have their septic systems pumped during the late fall and winter season in order to maintain moderate volume throughout the year and to avoid being overwhelmed with demand in the summer months.

The treated wastewater is released into rapid infiltration beds that flow into Namskaket Marsh and ultimately into Cape Cod Bay. Continued monitoring of these releases have shown no untoward effect on the Marsh or the Bay.

From the time a septic truck arrives at the plant to the release of treated wastewater and the shipment out of solid waste, there are a number of steps. Initially, the septage is pumped into filtering pools that will filter out larger objects (examples include toys, cell phones, false teeth – anything that could fall into a toilet or sink and disappear down the drain). Subsequently, the septage is pumped to a “thickening” station where a wide conveyor belt allows the water to pass through the belt and be separated from more solid

wastes, or sludge. The water is then diverted to a biological purification system and the sludge to tanks for dewatering.

The sludge is pumped into a large pressing machine at more than 100,000 tons pressure per square inch and the water that is removed is again sent for purification. The sludge, once pressed into solid bricks, is loaded onto trucks and sent to a private company in Yarmouth that disposes of the solid sludge either for further disposal off Cape, for sale for composting or other uses.

The purification of the wastewater is done through a series of processes. First, the wastewater is pumped to a large cistern where any remaining sludge is allowed to settle to the bottom and mechanical rakes guide it to a pipe where it is returned to the plant to a sludge tank for further treatment. The cleaned wastewater is then pumped to a Rotating Biological Contactor (RBC), a sort of quanset hut filled with 100,000 sq.ft. of rotating plastic blades covered with bacteria that eat most of the remaining sludge. The wastewater, not yet totally clean, goes through this same process again in another series of RBC's and finally is passed through a disinfection process under ultraviolet light twice when it is now clean enough to be released into the marsh.

This process for treated wastewater – while most bacteria, ammonia, and phosphorus are eliminated or are found at low levels – does not denitrify the wastewater. The TriTown facility's State permit currently allows the release of wastewater that does not exceed 50 mg/IN of nitrogen. The actual performance of the plant is better than that since the average release is between 20 and 35 mg/IN. Newer technology, which would be costly to install, could reduce this amount considerably, to less than 10 mg/IN. In addition, there is no current technology to remove pharmaceuticals from wastewater.