

# Successful Odor Control at the



## Mount Holly Municipal Utilities Authority Wastewater Treatment Facilities

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In 2003 the Mount Holly Municipal Utilities Authority (MUA) was contemplating an upgrade and expansion of its aging wastewater treatment facilities. A preliminary step in the process was to identify and establish the ultimate goals of the upgrade and expansion. From the onset it was abundantly clear that any upgrade and expansion must include an effective odor control system as an integral part of the project.

Once the project goals were clearly defined, Authority personnel began researching different available odor control technologies to determine which one would be right for the MUA. Several technologies were considered for effectiveness, ease of operation, maintenance, capital and operational costs. After careful consideration, a decision was made to proceed with a biological system for odor control.

The next step in the process was to identify a specific vendor on which to base the specifications for biological systems to treat the various existing sources of odors as well as the potential sources which were anticipated following the construction of a new satellite treatment facility. Several companies were invited to demonstrate their equipment at the MUA's existing facilities and BioAir unit was ultimately selected as a standard on which to base the odor control specifications.

The specifications were prepared by the MUA's Engineer and BioAir was chosen by the successful low bidder of the upgrade and expansion project to supply the odor control equipment for the project. The project design included five biological reactors to achieve continuous odor control at different treatment processes at the MUA's existing and proposed treatment facilities.

Among the processes requiring odor control were one existing and two new headworks facilities, two sludge processing tanks, a leachate storage tank, a new rotary drum thickener and a new raw sewage pumping station. Each application had its own unique characteristics and required careful consideration to ensure the odors were effectively captured, conveyed and treated.

Since the physical conditions that required odor control already existed, testing was performed to determine sizes and locations for the BioAir reactors and support equipment. For new process equipment to be installed, odor control reactors and equipment sizes were determined based upon design flows as well as the test data from existing headworks and sludge storage tanks.

Once sizes and locations were determined, orders were placed for two EcoFilter EF124 units and three EcoFilter EF62 Units. One of the larger EF124 units was used to treat an existing 30 year old headworks facility, which was treated as a confined space due to high concentrations of H<sub>2</sub>S, as well as an existing thickened sludge storage tank and a new rotary drum thickener. Following start-up of the EcoFilter, the headworks building no longer required a confined space designation and improved operator safety dramatically.

The second EF124 was used to treat existing sludge and leachate storage tanks. Three smaller EF62 units were used at the new treatment facility. Two of the EF62 units were installed next to two new automated headworks units and the third EF 62unit was used to treat the off gases from a newly constructed pumping station, which doubles as the plant drain pumping station and a domestic influent station.

Throughout the design, procurement and installation processes, BioAir provided assistance to the MUA and its Engineer by providing technical support and oversight of the installation. System checkout, inoculation and start-up were completed by BioAir personnel. The startup assistance from BioAir was crucial since the setup and balancing of air flows, the fine tuning of spray water for media moisture and the addition of nutrients are all set during start-up. In addition, system drain pH and inlet and outlet hydrogen sulfide levels were continuously monitored by BioAir.

Since the EcoFilters are biological systems, growth of the bacteria on the media can take several weeks, depending upon the temperature. To speed the growth, BioAir provides a temporary recirculation pump to recirculate drain water that might otherwise carry washed-off biological material away to a drain. Throughout the growth process, BioAir personnel made periodic site visits to check the progress of the growth and the operation of the systems.

Once the systems were determined to be in full operation, BioAir personnel removed the recirculation pump and made any final adjustments required. Since being placed into full service, the systems have performed extremely well. Odors at the existing 30 year old facility virtually disappeared and the new facility was placed into service with the confidence that odors would not be an issue of concern for operations staff.

Throughout the first year of operation, the inlet and outlet H<sub>2</sub>S concentrations were monitored by both MUA personnel and independently by BioAir personnel. The outlet concentrations have been virtually non-existent despite inlet concentrations which at times peaked above 20 ppmv. Performance of the EcoFilter units has surpassed all expectations of MUA staff in every respect.

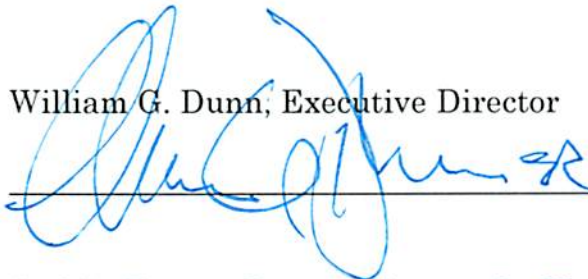
The simplicity of the design of the systems has proven to be very effective in eliminating the need for maintenance. The fact that the systems use biomass to reduce sulfurous compounds makes them extremely reliable and flexible to increases in inlet H<sub>2</sub>S concentrations. The sleek design of the system and use of the PLC for control functions such as nutrient addition and irrigation for media moistening makes the units virtually hands free. The control screens are operator friendly and easily understood.

One important factor is the robust nature of the ancillary equipment provided with the EcoFilter. The blower, nutrient pump and PLC have proven very reliable and

the absence of an irrigation pump makes the system simple to operate once the initial set-up is complete.

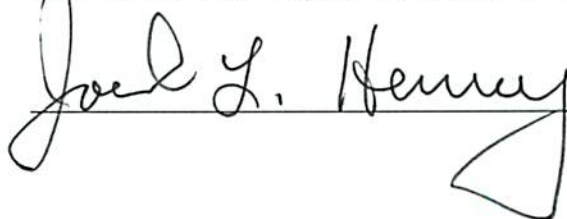
As a result of the positive experience with BioAir, the MUA has ordered and installed an EcoPure Mini unit to address odors at a remote pumping station located in relatively close proximity to several homes. The EcoPure Mini has all of the same characteristics of the EcoFilter units, only at a much smaller scale. To date, the EcoPure Mini's mechanical and operational performance has been exceptional. The Mount Holly Municipal Utilities Authority will undoubtedly look to BioAir for solutions for any future odor control problems.

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