

# TSSD MEMBRANE COVERED COMPOST SYSTEM

The Timpanogos Special Services District (TSSD) is in the process of acquiring a membrane covered compost system. The proposed system is designed by GORE® Cover which is a subdivision of the more familiarly known W. L. Gore and Associates, the inventor of Gore-Tex®. GORE® Cover technology is the most widely distributed composting system in the world with over 150 facilities located in more than 20 countries treating in excess of 3 million tons of organic waste annually.

The following graphic illustrates the proposed layout of the membrane covered compost system at the TSSD. Each membrane covered pile (windrow) can process approximately 1,000 cubic yards of waste. The new compost facility at TSSD will include 24 membrane covered windrows consisting of green waste mixed with biosolids.



## THE PROCESS

### Phase I: Active Composting - 28 Days

The composting process begins with the mixing of biosolids with green waste into a windrow to begin Phase I of the three phase - 8 week composting period. The windrow is covered with the GORE® Cover and an automated compost management system aerates the pile to control temperature and oxygen delivery. Temperatures can reach as high as 160 ° F which increases biological activity and leads to a reduction in pathogenic organisms. At the end of Phase I, the compost is sufficiently stable with minimal odor.

### Phase 2: Maturation - 14 Days

After Phase I, the GORE® Cover is removed, the compost is mixed and the windrow is again covered to begin Phase II. The automated compost management system is again used to aerate the pile to ensure complete compost stabilization.

### Phase 3: Finishing - 14 Days

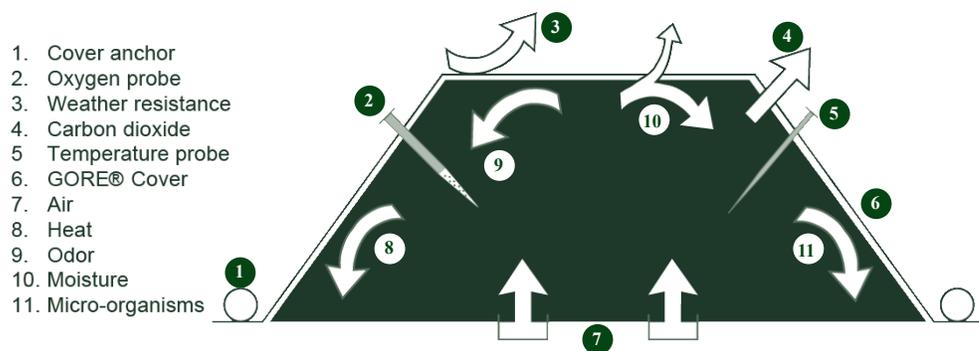
After Phase II, the aeration system is turned off and the windrow compost is mixed a third time to begin Phase III. Phase III completes the compost process by reducing moisture and allowing the compost to cool in preparation of screening and storage. In an effort to control odors, the pile will remain covered during Phase III.

## THE MECHANISM

The membrane cover reduces odors through two mechanisms:

1. Small pore space in the membrane restricts larger molecules (primarily the odor causing compounds) from escaping.
2. Water on the interior of the liner accumulates from condensation, absorbs odor causing compounds (ammonia, hydrogen sulfide, volatile fatty acids) to fall back into the compost pile.

The following figure illustrates how the GORE® Cover system works



## GORE® Cover System

The GORE® Cover system provides up to 97% reduction in odor concentration. It is approved for use in meeting the latest regulations in California which have the most strict air quality regulations in the United States. At several locations throughout North America, the GORE® Cover has been successfully implemented in facilities within a quarter mile of commercial and residential areas resulting in a significant reduction in odors.



WINDROW BUILDING



COVER PLACEMENT



COVERED WINDROW DURING AERATION