

## Synagro Kern Compost Design-Build, Kern County, California

- 500 tons-per-day biosolids composting facility operating over a 45-acre site
- CH2M HILL-patented revolutionary design of an underground pipe system to aerate compost piles and accelerate the composting process, lowering operating costs compared to aboveground systems
- Waste screenings are recycled as a bulking agent to provide 100 percent utilization of material entering the plant
- Facility design includes a zero-discharge storm water system to accommodate 100-year flood events

CH2M HILL, in conjunction with Tilden-Coil Constructors, designed, permitted, and constructed a 500 tons-per-day biosolids composting facility that will operate on a 45-acre site. This facility, named the South Kern Industrial Center (SKIC) Composting Facility, was completed and began operations in the first quarter of 2007.

Disposal of biosolids produced by wastewater treatment plants can be a large part of the cost of operating treatment. The SKIC Composting Facility is a \$25-million state-of-the-art plant capable of producing 500 tons per day of saleable compost product, utilizing wastewater treatment plant (WWTP) biosolids and other waste material. The project is located approximately 30 miles southwest of Bakersfield, California.

Synagro Technologies chose the CH2M HILL/Tilden-Coil team to lead this project based on competitive cost structure, lifecycle value, and our integrated design-build (DB) approach to engineering lifecycle, and project management.

The facility accepts 182,500 wet tons of biosolids per year and 126,000 tons of bulking agent, which includes wood chips, bark, and yard waste. Bulking agents are obtained from a variety of sources, including grass, tree limbs, bark, and other woody materials. Storage of these bulking agents ensures continuous availability for mixing with the continuous stream of biosolids into the plant and



provide for year-round production. The facilities are designed and sized to accept deliveries of biosolids 24 hrs/day, 7 days a week.

The SKIC site is a zero-discharge facility. No stormwater may exit this site, even during a 100-year flood event. Stormwater will be stored on-site to be evaporated or used in the air humidification process used to cool the pile aeration system. Storm water reuse allows for less pumping from the well located on the site.

CH2M HILL's patented design uses an underground pipe system to aerate the compost piles to accelerate the composting process and to lower operating costs compared to aboveground systems.

The composting process is accomplished in 4 stages: primary composting, secondary composting, curing, and screening. The waste material produced by the screen is recycled as bulking agent to provide for 100 percent utilization of material entering the plant.

To protect the environment from harmful VOCs, all air exhausted from the compost piles is fed through a biofiltration system. This system has the added benefit of eliminating odors.

Other facility components include administrative offices, a scale facility for monitoring incoming biosolids, an equipment maintenance building, a well, a 500,000-gallon storage tank, and truck wash area.