



2013 Biosolids Performance Report

<http://www.ebmud.com/water-and-wastewater/wastewater-treatment/biosolids>

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EBMUD Maintains Platinum Certification

In October 2013, the East Bay Municipal Utility District (EBMUD) successfully passed a third-party audit of its Biosolids Management Program (BMP) Environmental Management System (EMS) and maintained "platinum-level" certification of its program by the National Biosolids Partnership (NBP). The audit demonstrated that the BMP is functioning effectively and continues to meet the requirements established by the NBP. EBMUD is one of only 28 agencies in North America with this level of certification by NBP.

A number of program strengths and outcomes were highlighted, including:

- EBMUD management has a good understanding of the corrective action process and uses this process effectively throughout its biosolids program.
- Installation of interpretive signs describing EBMUD wastewater operations and key initiatives along the new Bay Bridge Trail bicycle and pedestrian path that runs along the Main Wastewater Treatment Plant.
- Installation of new 1/4-inch influent screens to replace existing 3/4-inch screens to reduce digester cleaning requirements and improve biosolids quality.
- Automation of primary sludge blanket level detectors to avoid

sending excess water to the digesters will increase digester capacity and result in more stable operation.

- Optimization of polymer use at dewatering led to a 25% cost reduction (annual savings of \$500,000).
- Replacement of digester floating covers with fixed covers to reduce fugitive methane and odor emissions to the atmosphere.
- Use of a blend tank upstream of the digesters results in a more homogeneous product and less potential for regulatory noncompliance.

For the first time, no major or minor nonconformances were identified during the audit. A copy of the full 2013 audit report is available at www.ebmud.com (see link above).

EBMUD will continue to conduct annual program audits over the next few years. If you would like additional information or are interested in observing the next audit, please contact us using the information provided in the "How to Contact EBMUD" section.



The National Biosolids Partnership is operated by the Water Environment Federation (WEF), in collaboration with the National Association of Clean Water Agencies (NACWA) and with advisory support from U.S. EPA.

Progress Toward Goals and Objectives

EBMUD has established specific goals and objectives for continuous improvement. This information is available on our website for 2014-15 and we invite public input.

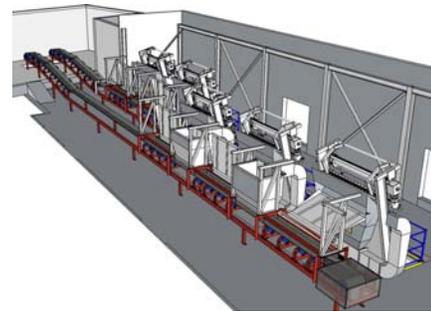
EBMUD is upgrading key solids handling and treatment processes to help sustain effective and reliable long-term operation, as demonstrated by the following projects:

- Anaerobic Digester Upgrade:** EBMUD has nearly completed the second phase of a digester upgrade project that will result in new fixed covers and an improved mixing system for all 8 of the first-stage digesters. The project also includes digester feed blend tanks to mix municipal sludges with high-strength wastes to provide a more homogeneous feed for enhanced digester stability and gas management.



Digester blend tanks

- Influent Fine Screens Upgrade:** EBMUD has completed construction of an initial project phase to replace the existing, 3/4-inch coarse screens at the Influent Pump Station with 1/4-inch fine screens. The new screens will capture and remove significantly more debris that would otherwise go to the digesters. The screenings are washed and compacted to reduce material hauling to the landfill. The project will result in lower digester cleaning costs and improved biosolids quality. Two of five screens have been installed to date.



Rendering of new influent fine screens

In 2013, EBMUD met its biosolids management diversification goals by maintaining at least two reuse options. All biosolids produced at the MWWTP met Class B requirements, which allowed for 100% beneficial reuse.

Outreach to Interested Parties

EBMUD's public outreach efforts related to its Biosolids Management Program include:

- Providing updates on program activities at West Oakland neighborhood and business association meetings.
- Responding to inquiries from interested parties via email and telephone calls regarding EBMUD's biosolids management activities.
- Providing updated information on its website and encouraging feedback from the public.
- Installing interpretive signs along the Bay Bridge Trail (see photo).

EBMUD welcomes questions and opportunities to speak to the public about biosolids. Our haulers

and inspectors carry fact sheets on biosolids in case a member of the public has any questions.

EBMUD strives to continue building credibility and trust in the community by demonstrating our commitment to environmental performance and continuous improvement through high quality and sound biosolids management practices.



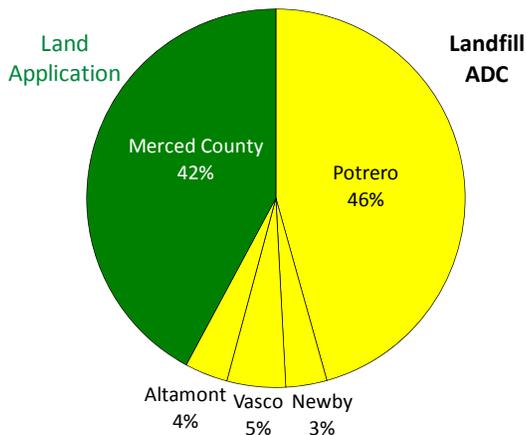
One of the Bay Bridge Trail signs, which describes wastewater treatment

Environmental Performance

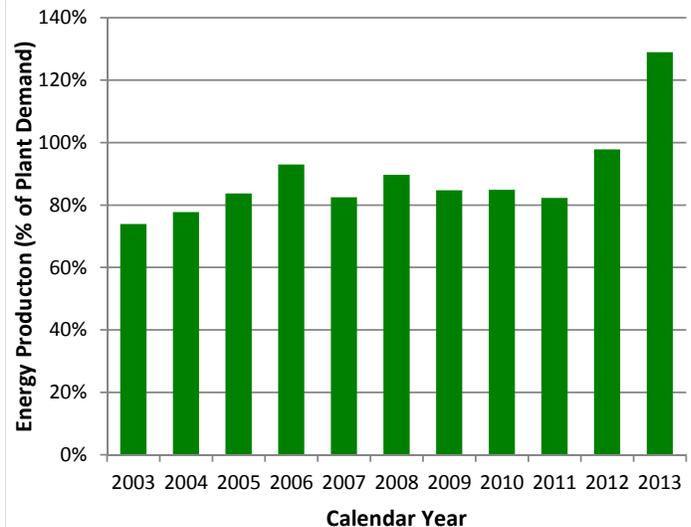
Beneficial Reuse: One hundred percent of the biosolids produced at EBMUD's Main Wastewater Treatment Plant (MWWTP) are beneficially reused. Our biosolids are either used for land application at non-food crop sites in Merced County or as alternative daily cover (ADC) at nearby landfills.

Jan to Dec 2013

- 67,755 total wet tons
- 186 wet tons/day (average)
- 8 trucks/day (average)
- Biosolids cake dryness = 23% total solids (average)



Energy Production: Methane gas produced during anaerobic digestion of biosolids is captured and used to produce renewable electricity at EBMUD's Power Generation Station. In February 2012, EBMUD completed installation of a new 4.6-MW turbine, which allowed the MWWTP to become a net energy producer (first in North America). Following successful troubleshooting in 2012, in 2013, the MWWTP produced close to 130% of the electricity required to operate the facility.



Contractor Performance News

In 2013, a total of 2,773 trucks transported EBMUD biosolids to landfill and land application sites. As part of the EMS process, each driver is trained and prepared with the proper equipment and reference information in case there is an accident during transit.

An EBMUD inspector also performs random audits of the truck hauling process during biosolids loading, unloading, and transporting to ensure that its hauling contractors are following correct procedures and complying with established standards. Each landfill ADC and land application site is routinely inspected by EBMUD staff throughout the year.

Inspections at the MWWTP occur once per month for each driver. EBMUD notifies its hauling contractors if any follow-up or corrective actions are required.

EBMUD's biosolids hauling contractors were also interviewed as part of the third-party audit conducted in October 2013.

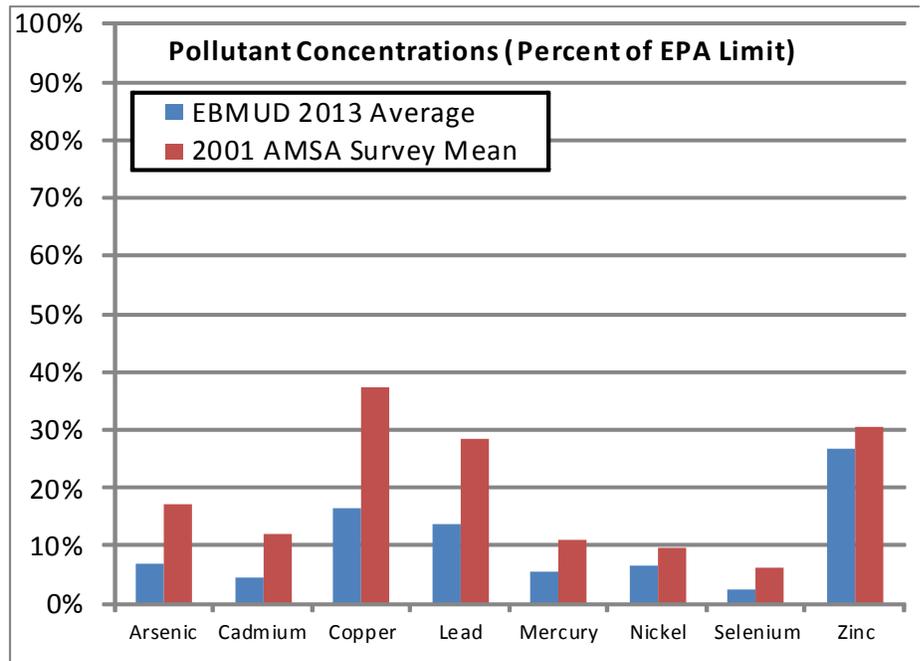


Contractor equipment preparing to spread biosolids at a land application site in Merced County

Regulatory Compliance

EBMUD's biosolids management practices comply with all applicable federal, state, and local requirements, as well as other voluntarily-adopted requirements.

EBMUD biosolids have consistently met all standards required by U.S. EPA for use as Class B biosolids. They are well below the regulatory limits for metal concentrations and average concentrations from a 2001 Association of Metropolitan Sewerage Agencies (AMSA) survey of 159 other wastewater treatment facilities (see figure). Fecal coliform levels (indicators of pathogenic organisms) averaged 16 MPN/g total solids, which was well below the regulatory limit of 2 million MPN/g total solids.



Program Improvements

The EMS approach has helped improve and clarify roles and responsibilities for determining the overall apportioning of biosolids between the two end uses (land application, landfill ADC) and hauling contractors. In addition, EBMUD has improved the daily coordination of biosolids handling activities and communications with its hauling contractors.

EBMUD continues to use its BMP to help identify opportunities to diversify its biosolids management options by staying abreast of alternative technologies and end use options. EBMUD will continue to identify and develop management options to ensure continued sustainable, environmentally-friendly, and cost-effective reuse of its biosolids product.



Did you know?

- There are several locations in EBMUD's service area where residents can recycle used cooking oil. One location is the MWWTP located at 2020 Wake Avenue in Oakland.
- The wastewater treatment plant is located next to the Bay Bridge Trail. There are three signs along that stretch of the trail that describe operations at the MWWTP.
- Treated wastewater is conveyed in a 108-inch pipe from the MWWTP parallel to the Bay Bridge Trail and then continues one mile offshore where it is discharged to SF Bay.

How to Contact EBMUD

If you have any comments or input regarding our program, please contact Vince De Lange, Biosolids Management Program Manager, at vdelange@ebmud.com or (510) 287-1141.

If you would like more information, please visit the Biosolids Management Program website at: <http://www.ebmud.com/water-and-wastewater/wastewater-treatment/biosolids>