East Bay Municipal Utility District

2014 Biosolids Performance Report

http://www.ebmud.com/water-and-wastewater/wastewater-treatment/biosolids March 2015

Inside this issue:

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.

EBMUD Maintains Platinum Certification

In October 2014, EBMUD completed an internal, partial-program audit. This was the first year that the annual Interim Audit was conducted internally, and it marks the eighth annual program audit.

Program strengths identified through the audit process included:

- Effective tracking of permits issued through the pretreatment permit program
- High-level of cross-training among pretreatment inspectors
- Strong link between daily activities and strategic planning
- Improved awareness of biosolids management through the Environmental Management System (EMS) program

One minor and zero major program nonconformances were identified during the audit. The nonconformance was related to the corrective and preventive action (CAPA) process used to address gas releases and flare failures. An action plan was developed to address this nonconformance, which includes documenting preventive maintenance activities and providing additional training for use of newly-installed equipment. Minor nonconformances do not represent a systemic problem, but do require corrective action. Actions to correct these nonconformances are expected to be verified during the next annual program audit (September 2015). A copy of the full 2014 audit report is available at www.ebmud.com (see link above).

EBMUD will continue to conduct annual program audits over the next few years. The September 2015 audit will be a Year 9 mandatory third-party audit. 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.

EBMUD biosolids land application site in Merced County

Progress Toward Goals and Objectives

EBMUD has established specific goals and objectives to drive continuous improvement. The 2014-15 goals and objectives are available on our website, and we invite public input.

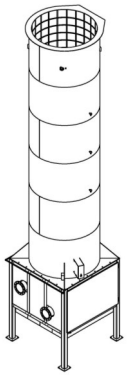
EBMUD is upgrading various infrastructure elements to sustain effective and reliable operation, as described below:

- **Digester Upgrade Projects:** The second phase of this project is nearly complete after five years of construction, which included rehabilitation of the eight first-stage digesters with new fixed covers and enhanced mixing.

EBMUD conducted internal planning workshops in the spring of 2014 to prioritize future digester improvement projects within the 10-year capital improvement program, which includes third and fourth project phases to rehabilitate the remaining three digesters. This work will include improving seismic resiliency, installing dual-membrane covers for digester gas storage, and enhancing mixing.

- **Struvite Control Investigation:** In August 2014, EBMUD initiated an investigation to develop near- and long-term strategies to control struvite formation, which is a common problem in dewatering facilities. The study will address operational problems and dewatering capacity limitations caused by struvite accumulation, which results in pipe deposits that restrict hydraulic capacity. Near-term improvements include centrate line modifications to improve operational reliability. New piping materials with low friction were selected to reduce struvite deposits. Construction is scheduled to begin in May 2015.

- **Gas Flare Improvements:** In 2013, two digester gas releases occurred at the Main Wastewater Treatment Plant (MWWTP). Following these incidents, EBMUD used the CAPA process to identify the root cause of the failure as insufficient flare capacity. In response, a flare expansion project was initiated to provide sufficient gas flare capacity when the turbine or engines are out of service. Until the new flares are operational (targeted for mid-2016), EBMUD will use operational adjustments to reduce the potential for digester gas releases.



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 the EBMUD website and encouraging feedback from the public.

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.

In 2014, EBMUD conducted several community meetings and tours of the MWWTP for West Oakland residents and business owners.

Environmental Performance

In addition to establishing a goal of 100% beneficial reuse of biosolids produced at the MWWTP, EBMUD has also established environmental performance goals and objectives including the following:

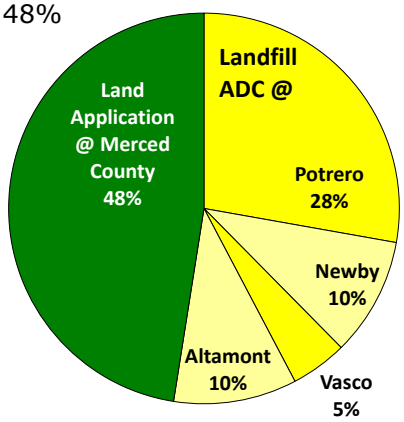
- Maintaining two different reuse options
- Maximizing land application during dry weather
- Developing technology evaluations

Beneficial Reuse: Biosolids produced at EBMUD's MWWTP are beneficially reused for either land application at non-food crop sites in Merced County or as alternative daily cover (ADC) at nearby landfills. EBMUD met the goals of 100% beneficial reuse, maintaining two options, and maximizing land application.

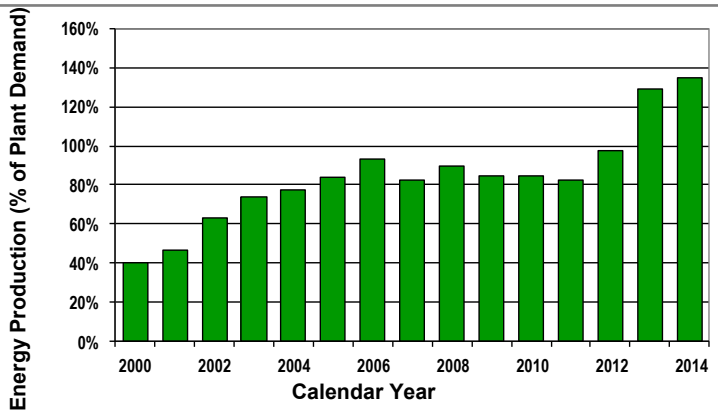
In addition, EBMUD continues to assess options for a range of technologies and alternatives for biosolids beneficial reuse.

January to December 2014

- 203 average wet tons per day (8 trucks per day)
- Average biosolids cake dryness = 23% total solids
- 73,922 total wet tons
  - 100% beneficial reuse
  - Landfill ADC = 52%
  - Land application = 48%



Energy Production: In 2014, the MWWTP produced 135% of the electricity required to operate the facility. Methane gas produced during anaerobic digestion of biosolids is captured and used to produce renewable energy. Electricity and heat are produced by three 2.1-megawatt (MW) engine-generators and a 4.6-MW gas turbine. Electricity is utilized onsite and exported to the Port of Oakland. Heat is utilized onsite to maintain digester temperatures.



Contractor Performance News

In 2014, a total of 3,034 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.

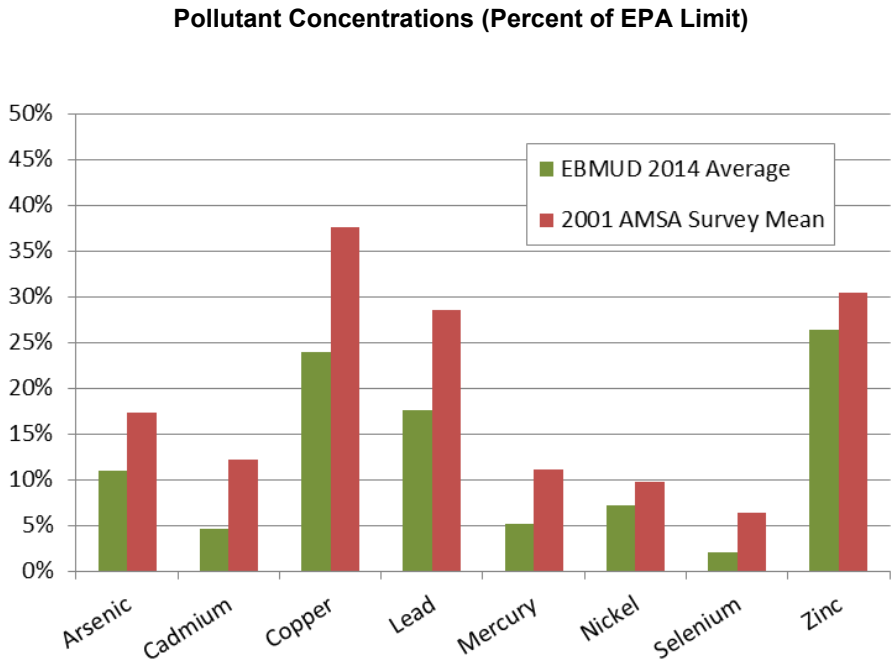
An EBMUD inspector also performs random audits of the truck hauling process during biosolids loading, unloading, and transporting to ensure that its hauling contractors are following correct procedures and complying with established standards. Each landfill ADC and land application site is routinely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

Staging area for biosolids land application 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 12 most probable number per gram (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.

How to Contact EBMUD

If you have any comments or input regarding our program, please contact Alicia Chakrabarti, Biosolids Management Program Coordinator, at achakrab@ebmud.com or (510) 287-2059.

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

Did you know?

- Beginning in July 2016, source-separated commercial food waste from the City of Oakland is expected to be delivered to the MWWTP for processing, anaerobic digestion, and onsite energy production (0.5 to 1.0 MW of additional renewable energy).
- The MWWTP is located next to the Bay Bridge Trail, which now has three interpretive signs highlighting key activities at the MWWTP.
- Treated wastewater is conveyed in a 108-inch outfall pipe from the MWWTP to approximately one mile offshore where it is discharged to SF Bay.