

National Biosolids Partnership

Biosolids Management Program Interim Audit Report

East Bay Municipal Utility District Oakland, California

Audit Dates: October 23 and 24, 2013

Audit Conducted By: DEKRA Certification, Inc. (Chalfont, PA)

Audit Team: Mr. Jon Shaver, Biosolids EMS Lead Auditor / Biosolids Auditor

Report Written By: Mr. Jon Shaver, Biosolids EMS Lead Auditor

Report Date: November 4, 2013

Reviewed By: Jennifer Ku, Vince De Lange - East Bay Municipal Utility District

Report Approved By: Michelle Hunn, Vice President DEKRA Certification, Inc. 11-05-13



Table of Contents

1.	SUMN	SUMMARY		
2.	AUDI [*]	T DETAILS	4	
	2A.	Local Agency Details	4	
	2B.	DEKRA Audit Team	4	
	2C.	Audit Criteria, Scope and Methodology	4	
	2D.	Definitions of Audit Findings and Required Corrective Action	5	
	2E.	Reference Materials		
	2F.	Appeals	6	
	2G.	Additional Information	6	
3.	SUMMARY OF AUDIT RESULTS			
	3A.	Verification Conclusion		
	3B.	Strengths Observed		
	3C.	Nonconformances	7	
	3D.	Agreements	7	
4.	MANAGEMENT PROGRAM DYNAMICS			
	4A	Significant Changes		
	4B	Revisions to the Management System and Related Documentation	8	
	4C	Examination of Outcomes		
	4D	Correction of Nonconformances from Previous Third Party Audits		
	4E	Effectiveness Reviews		
	4F	Interested Party Interviews		
	4G	Summary – BMP Dynamics and Effectiveness	10	
5.	PROCESS AUDITS			
	5A	Summary	11	
	5B	Process Audit Results		
	5C	Opportunities for Improvement	11	
APPE	ENDICE	S	12	
	List of Participants			
	List of Documents and Records Reviewed		10	



1. SUMMARY

DEKRA Certification, Inc. (DEKRA) conducted an independent audit of the BMP being used by the East Bay Municipal Utility District (EBMUD). The audit was conducted October 23 and 24, 2013 at EBMUD's request as part of its participation in the National Biosolids Partnership (NBP) Biosolids Management Program (BMP). This was the second Interim Audit of the EBMUD biosolids program following certification within NBP BMP in September 2011.

Audit Purposes

This interim audit was conducted to:

- Confirm that EBMUD is managing its biosolids program effectively, with practices and procedures being performed as documented.
- Verify that parts of the management program being used by EBMUD in managing its biosolids activities continue to meets NBP expectations and requirements.
- Examine outcomes that EBMUD is achieving through the use of a systematic approach for continually improving its biosolids program.
- Verify that effective corrective action has been taken in response to open nonconformances from previous third party audits.

The audit scope covered parts of the EBMUD biosolids program, including activities within their biosolids value chain, consistent with NBP requirements. Audit criteria were the requirements of the 17 NBP BMP Elements and EBMUD's BMP requirements.

Audit Findings and Conclusions

The EBMUD BMP is generating positive outcomes. No nonconformances with respect to the audit criteria were found during this audit. All open nonconformances from previous DEKRA audits have been closed.

Based on the results of this audit, DEKRA has determined that:

- EBMUD biosolids activities are consistent with NBP expectations and meet requirements of the NBP BMP Elements.
- Use of a management system approach is generating positive outcomes for EBMUD's BMP in the areas of regulatory compliance, environmental performance, quality practices and relations with interested parties.

DEKRA recommends continuing "Platinum" Certification of EBMUD's BMP within the NBP BMP.



2. AUDIT DETAILS

2A. Local Agency Details

Agency Detail

Agency Name: East Bay Municipal Utility District, Oakland California (referred to as EBMUD in this

report)

Number of Employees = 280

Biosolids Production Sites: Main Wastewater Treatment Plant, Wake Avenue, Oakland, CA

Volume of Wastewater Treated = 120 MGD (permitted); 65 MGD annual average daily flow

Biosolids Produced = 73,000 wet tons per year (Class B) – approximately 30% to land application, 70% to landfill ADC

Biosolids Use / Disposition Sites Audited

None

EBMUD Biosolids Program

EBMUD's Biosolids Program includes defined processes for Pretreatment, Wastewater Treatment and Solids Generation, Solids Stabilization, Dewatering, Biosolids Storage and Transportation and Biosolids Disposition (two use options). Contractors are employed for managing biosolids transportation and use options. Biosolids use includes agriculture land application and landfill alternative daily cover. EBMUD manages their biosolids program using a management system approach based on the NBP BMP Elements.

2B. DEKRA Audit Team

EBMUD requested DEKRA Certification Inc. to conduct this Third Party Audit of their biosolids program. Mr. Jon Shaver led the audit on behalf of DEKRA. Mr. Shaver is certified by NBP as a Biosolids EMS Lead Auditor and Biosolids Auditor. DEKRA asserts that our firm and auditor each have an independent and impartial relationship with EBMUD that meets NBP criteria for Third Party Audit Companies and Auditors.

2C. Audit Criteria, Scope and Methodology

Audit Criteria

Requirements stipulated in the NBP BMP Elements (July, 2011) and the EBMUD BMP were used as criteria for this audit.

Audit Scope

The scope of this audit covered parts of the EBMUD biosolids program, with special attention to practices and management activities that directly support biosolids-related operations, processes and activities. The audit covered the following topics, consistent with NBP requirements for interim audits,



the interim audits program previously agreed to by DEKRA and EBMUD and the Scope of Work for this audit agreed by EBMUD and DEKRA.

- 1. Biosolids Management System Dynamics Review, including:
 - Review of any significant changes affecting the biosolids program
 - Biosolids Policy
 - Communications (internal and external)
 - Review of Effectiveness:

Corrective and Preventive Action Process Goals and Objectives Process Management Review Process

- Review of Internal Audits (and related Corrective Action)
- 2. Process Audits:
 - Biosolids Storage and Transportation (including control of contractors)
 - Competency, Awareness and Training
 - Emergency Preparedness
 - Laboratory
 - Maintenance
 - Management Involvement and Direction
- 3. Verification of effective correction of nonconformances from previous third party audits (see attached)
- 4. Examination of outcomes (regulatory compliance, interested party relations, environmental performance, quality practices)
- Interested party interviews

Audit Methodology

The audit was conducted by interviewing key personnel with biosolids responsibilities, observing practices in place and reviewing pertinent documents and records. Interested parties were interviewed and transaction tests were performed to verify management system effectiveness. It was performed in a manner that is consistent with the NBP Auditor Guidance. Standard audit sampling techniques were used. This audit was conducted as a systems audit and is not a verification of compliance with any legal requirements applicable to practices performed by the agency or its contractors.

2D. Definitions of Audit Findings and Required Corrective Action

<u>Major Nonconformance</u> – a serious omission from requirements and/or other departure that represents, or could cause, a systemic failure, or the existence of multiple related minor nonconformances, or failure to effectively correct a nonconformance in a timely manner. For verification to proceed, correction of major nonconformances must be verified by a third party audit within 90 days.



<u>Minor Nonconformance</u> – an isolated departure from requirements that does not represent a systemic failure. Minor nonconformances require timely and effective correction by the agency and verification by a Third Party Auditor during the next third party audit.

<u>Opportunity</u> (for improvement) – possible improvement in the BMP based on auditor observations. There is no obligation for action in response to these observations.

2E. Reference Materials

The following documents were used as references during this audit:

EBMUD BMP Manual (current version)

NBP "BMP Elements" (July 2011)

NBP Third Party Auditor Guidance (August 2011)

NBP Code of Good Practice

NBP Manual of Good Practice

2F. Appeals

The NBP provides an appeals process for biosolids organizations and interested parties that disagree with the findings of a third party EMS audit. The verification appeals process involves an Appeals Board; representing a balance of biosolids management interested parties, including an environmental advocacy group, and wastewater industry professionals. An appeal must be submitted within 30 days of the official verification decision or interim audit decision by the Audit Company. Information about the appeals process is available from NBP by contacting Ms. Lisa McFadden at Imcfadden@wef.org.

2G. Additional Information

Further information about this audit and/or the East Bay Municipal Utility District BMP can be obtained from East Bay Municipal Utility District by contacting Mr. Vincent De Lange, EBMUD BMP Manager, (at vdelange@ebmud.com).



3. SUMMARY OF AUDIT RESULTS

3A. Verification Conclusion

Based on the results of this audit, DEKRA has verified that the EBMUD BMP continues to meet the expectations and requirements of the NBP BMP. Continuing certification within the NBP BMP is recommended.

3B. Strengths Observed

During this audit, DEKRA noted the following strengths in the EBMUD BMP.

 EBMUD management has good understanding of the corrective action process and uses this process effectively throughout its biosolids program.

3C. Nonconformances

No nonconformances found during this audit.

All nonconformances remaining open from previous DEKRA audits have been effectively corrected and are closed.

3D. Agreements

EBMUD and DEKRA have agreed that the next Interim Audit will occur in September 2014. This audit can be conducted as a Third Party Audit, or as a self-assessment, as desired. Interim Audits will continue to follow the Interim Audits Program agreed by DEKRA and EBMUD.



4. MANAGEMENT PROGRAM DYNAMICS

Review of the management system dynamics and outcomes is intended to verify that the biosolids management system is functioning effectively and generating positive outcomes (results) and that changes are being incorporated into the system. The following summarizes DEKRA's review of the dynamics of EBMUD's BMP.

4A Significant Changes

The following changes affecting the EBMUD BMP have occurred since the previous Third Party Audit.

Organizational changes – The Director of Wastewater retired in early 2013 and was replaced through internal promotion. At the time of this audit EBMUD had two vacant Division Manager positions.

Review of these changes during the audit determined that they were implemented in a manner consistent with BMP requirements.

4B Revisions to the Management System and Related Documentation

The BMP Manual was reviewed in 2013 and minor changes were made. No significant changes have been made in the past year.

4C Examination of Outcomes

The EBMUD BMP is improving through the use of a systematic approach to managing their biosolids activities. The following improvement outcomes within the past two years were confirmed.

Relations with Interested Parties

- Communication with public organizations (e.g. West Oakland Liaison Group, City of Oakland)
 plus wastewater treatment plants tours led to positive, supportive feedback, particularly
 addressing adverse opinion about processing food waste at the plant.
- Use of positive information about EBMUD function and operations on the Bay Bridge Trail bicycle path is seen as a positive step in continually improving relations with the public.
- EBMUD participated in a broad, State-wide effort to ensure proposed ruling AB371 did not pass.
 The ruling would have limited the land application of biosolids.

Quality Practices

- Changing from ¾ inch to ¼ inch influent screens results in reduced digester cleaning and improved biosolids quality (less debris).
- Optimization of polymer use at the dewatering facility led to a 25% cost reduction (savings \$500K/yr).
- Automation of primary sludge blanket level detectors avoids sending excess water to the digesters, thus increasing available digester capacity and results in a more consistent operation (optimize thickness level).

Environmental Performance

Fixed covers on digesters (replace floating covers) reduces methane emission to atmosphere.



Regulatory Compliance

 Use of a blend tank upstream of the digesters results in a more homogeneous product and less potential for regulatory noncompliance.

4D Correction of Nonconformances from Previous Third Party Audits

DEKRA found two minor nonconformances during the Interim Audit of the EBMUD BMP in September 2012. In response, EBMUD implemented corrective action as outlined below.

Minor Nonconformance JS 12-01 NBP EMS Element 10 requires the organization to develop and implement standard operating procedures, or other appropriate methods at critical control points to manage potential environmental impacts. SOPs determined necessary and being used for operating the Power Generating Station turbine are in draft form (not approved, not dated).

Corrective Action - EBMUD determined that this nonconformance was caused by lack of a defined process for determining how SOPs should be updated. In response, they defined conditions for using SOPs as part of new equipment installation. Review by DEKRA's Lead Auditor verified that this action was effectively completed to prevent recurrence of the nonconformance. The nonconformance is now closed.

Minor Nonconformance JS/12-02 NBP EMS Element 14 requires the organization to identify the cause and take action to address nonconformances identified during internal BMP audits. Corrective actions developed in response to a finding from the 8/25/12 internal audit did not identify the cause so that action could be taken to prevent recurrence of the problem.

Corrective Action - EBMUD determined that this nonconformance was caused by an incomplete process for investigating and correcting audit nonconformances. In response, they developed and implemented a procedure for correcting nonconformances that requires cause analysis. Review by DEKRA's Lead Auditor verified that this action was effectively completed to prevent recurrence of the nonconformance. The nonconformance is now closed.

4E Effectiveness Reviews

Communications Program

The EBMUD Communications Program includes proactive methods for communicating with interested parties, including the public and regulators. Communications occurs through public meetings (e.g. West Oakland Liaison Group), brochures and the EBMUD website. Internal communications occurs through regular staff meetings and contractor meetings.

Biosolids Goals and Objectives Process

Of the sixteen objectives set for 2013, six have been accomplished, seven are progressing adequately, two were not achieved and one was revised. The Goals and Objectives process is working effectively.



Corrective and Preventive Action Process

The Corrective and Preventive Action process was used to address nonconformances from previous Third Party Audits and internal audits. The process was effective in recording, planning and correcting those nonconformances.

Management Review

Management involvement has been demonstrated through actions taken regarding issues raised in management reviews and programs for measurement and improvement. The actions taken are consistent with defined objectives. The review process includes discussion of BMP performance and any need for changes at bi-monthly BMP Team meetings and quarterly Steering Committee meetings. Reports of biosolids program performance are discussed with senior management monthly. Follow-up actions are recorded.

Internal Audits

A three-year plan for conducting internal audits of the BMP is in place. Audits planned for 2013 have been completed and the results were reported to management. The internal audit process is functioning effectively.

4F Interested Party Interviews

During this audit, DEKRA interviewed the USEPA biosolids regulator, a regulator from Solano County, a representative of CASA and representatives from the City of Santa Rosa and San Francisco Public Utilities Commission. All parties interviewed noted that EBMUD's communication with them is open and proactive and requests are handled effectively. EBMUD had a positive effort in countering a proposed state assembly bill that would have restricted biosolids use.

4G Summary – BMP Dynamics and Effectiveness

Review of the dynamics of the EBMUD BMP confirmed that it is functioning effectively and generating positive outcomes.



5. PROCESS AUDITS

5A Summary

As part of this audit DEKRA audited the following processes that EBMUD uses within its BMP and determined the level of conformance of each process with NBP expectations and requirements of the audit criteria.

Process	Conformance with Applicable BMP Elements
Biosolids Storage and Transportation (+ related control of contractors)	Conforms
Competency, Awareness and Training	Conforms
Emergency Preparedness	Conforms
Laboratory	Conforms
Maintenance	Conforms
Management Involvement and Direction	Conforms

5B Process Audit Results

Audit of the processes listed above determined that they are functioning effectively and meet requirements of the NBP EMS Elements.

5C Opportunities for Improvement

The following "opportunities" for improving the EBMUD biosolids program were noted during the audit. EBMUD has no obligation to take any action in response to these Opportunities.

- Statements of "goals" could be simplified so their meaning and intention are more easily understood.
- The program / schedule for conducting internal audits could include audits of compliance with legal requirements and allow for scope changes at the discretion of the Biosolids Management Team.
- Internal audits reports could include results and conclusions related to the stated purpose of the audit.
- Internal audits could help assess whether the Corrective and Preventive Action process is functioning as intended and identify opportunities for improving and expanding it.
- The Startup Engineering Process could be documented as a standard procedure (or requirement).
 Internal audits could help assess how well the process is working.
- The Corrective and Preventive Action process could include a "verification" step after planned actions are completed to verify the actions are effective in preventing recurrence.
- The EBMUD procedure for reviewing and approving SOPs could be clearer.



APPENDICES

List of Participants

The following persons participated in this audit. Other persons provided additional explanations, as needed.

East Bay Municipal Utility District Personnel

Nirmela Arsem Manager of Laboratory Services Division Ike Bell Plant Maintenance Superintendent

Maura Bonnerens Senior Civil Engineer
Antoine Chamsi Quality Assurance Officer

Jeff Cloherty Wastewater Operations Coordinator
John Corriea Assistant Wastewater Shift Supervisor

Vince De Lange Senior Civil Engineer – Wastewater Planning/BMP Coordinator

David Freitas Wastewater Treatment Superintendent Kurt Haunschild Manager of Wastewater Treatment Division

Danny Hoang Wastewater Plant Operator
Dan Jackson Laboratory Supervisor
Jennifer Ku Assistant Engineer

Debra Mapp Wastewater Control Inspector
Heidi Oriol Associate Civil Engineer
Huong Ton Wastewater Plant Operator
Linda Winters Wastewater Shift Supervisor
Chuck Wittorp Wastewater Control Inspector

Interested parties

Jeff Bell Senior Environmental Health Specialist, Solano County

Andy Clark Operation Chief, SFPUC Colin Close City of Santa Rosa

Lauren Fondahl USEPA

Edward Garcia Utilities Technician, City of Santa Rosa

Bonnie Jones Senior Engineer, SFPUC

Greg Kester Director of Renewable Resources Programs, CASA

Bob Matcham Operation Chief, SFPUC Greg Mayer Operations Manager SFPUC

Adrian Santiago Consultant for SFPUC



List of Documents and Records Reviewed

Biosolids Management Goals and Objectives 2012 / 2013

Biosolids Management Policy 6/26/12

Biosolids Program Performance Report 2012

BMP Awareness training Oct 2013

BMP Manual 10/22/13

BMP Steering Committee minutes 9/30, 10/14

BMP Team meeting minutes (various)

BMP update 3/12/13

BMP website

Business Continuity Plan

CCP and impacts related to biosolids

Corrective action plans and implementation log

Critical control points and potential impacts related to biosolids 9/29/12

Critical vendor list

Digester upgrade training records

Emergency Preparedness Program

External audit nonconformance CAPA review 10/22/13

Goals and objectives tracking records

Internal audit reports (2013)

Internal audit results summary 2013

Internal audit schedule 2012-15

Internal audit schedule purpose and scope

Key Responsibilities - Director of Wastewater 10/14/13

MSDS (various)

Near miss and incident investigation protocol 4/10/13

Odor mitigation update 5/14/13

Project startup minutes 12/17/12

Semi-annual Newsletter Oct 2013

System training records 10/10/13

Weighmaster license list 9/23/13

END OF REPORT