

National Biosolids Partnership
Biosolids Management Program Internal Audit Report

East Bay Municipal Utility District
Oakland, California

Audit Dates: October 28 and 29, 2014

Audit Conducted By: Colin Moy, Senior Environmental Health and Safety Specialist,
Environmental Services Division

A handwritten signature in blue ink that reads "Colin S. Moy". The signature is written in a cursive style with a loop at the end of the last name.

Report Date: November 25, 2014

Reviewed By: Jennifer Ku, Assistant Engineer

Alicia Chakrabarti, EBMUD Biosolids Management Program Coordinator

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1. SUMMARY

The East Bay Municipal Utility District (EBMUD) conducted an internal audit of its Biosolids Management Program (BMP) on October 28 and 29, 2014 as part of maintaining EBMUD's participation in the National Biosolids Partnership (NBP) Biosolids Management Program (BMP). This was the first interim Internal Audit of the EBMUD biosolids program since becoming a certified NBP agency in September 2006. Prior to this audit, EBMUD conducted annual external audits of its BMP via an outside consultant.

Audit Purposes

This internal audit was conducted to:

- Verify 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 meet 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 three elements of the EBMUD BMP consistent with NBP requirements. Audit criteria were based on requirements for the NBP BMP elements in communications, compliance, pretreatment and collection, and EBMUD's overall management program.

Audit Findings and Conclusions

The EBMUD BMP has achieved successful outcomes through the process-based management approach and receives positive feedback from external parties. One minor nonconformance with respect to the audit criteria was identified during this audit. There were no open nonconformances from last year's third-party audit to be closed.

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

- EBMUD biosolids activities are consistent with NBP expectations and meet the requirements of the NBP BMP elements.
- Use of a management system approach is generating positive outcomes for EBMUD's biosolids program in the areas of communications, regulatory compliance and pretreatment and collection.

EBMUD recommends continuing "Platinum" Certification of its program within the NBP BMP.

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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, 2020 Wake Avenue, Oakland, CA

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

Biosolids Produced in 2013 = 68,000 wet tons per year (Class B) – approximately 42% to land application, 58% to landfill ADC

Biosolids Use/Disposition Sites Audited

None

EBMUD Biosolids Program

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

2B. EBMUD Audit Team

The EBMUD BMP Coordinator requested an interim internal audit of the biosolids program instead of a third-party audit as allowed by the NBP for the Year 8 audit. Mr. Colin Moy led the audit. Mr. Moy is a Senior Environmental Health and Safety specialist in the Environmental Services Division of the Wastewater Department. He has nearly 30 years of experience in the environmental regulatory compliance and due diligence assessment field. He has completed dozens of regulatory compliance, due diligence, and environmental management system audits using International Organization for Standardization and American Society for Testing and Materials guidance.

2C. Audit Criteria, Scope and Methodology

Audit Criteria

Requirements and guidance documents stipulated in the NBP and EBMUD BMP were used as criteria for this audit (see references).

Audit Scope

The scope of this audit covered parts of the EBMUD biosolids program, with special attention to management system dynamics that directly resulted in opportunities for improvement. The audit covered the following topics, consistent with NBP requirements and guidance fact sheets:

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1. Biosolids Management System Dynamics Audit
 - Management of Significant Changes
 - Management Involvement
 - Communication Program (internal & external)
 - Internal Audits
 - Review of Effectiveness

2. Process System Audit
 - Elements 6 & 9, 15: Communication Program (interested parties)
 - Elements 4, 13: Compliance Program (environmental, legal & others)
 - Elements 3 & 10, 11, 13: Pretreatment and Collection Program

Audit Methodology

The audit was conducted by interviewing key personnel with biosolids responsibilities and reviewing pertinent documents and records. Interested parties were interviewed and transaction tests were performed to verify management system effectiveness. The audit 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 & Required Corrective Action

Major Nonconformance – 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. Correction of major nonconformances must be verified within 90 days by the auditor.

Minor Nonconformance – 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 the auditor during the next interim audit.

Opportunity (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 (dated October 22, 2013)
- EBMUD Semi-annual Internal BMP Newsletters
- EBMUD BMP Summary of Corrective and Preventive Actions (October 2014)
- EBMUD Internal Audit Findings (September 2014)
- EBMUD BMP Summary of Goals and Objectives Action Plan (October 2014)
- NBP “EMS Elements” (July 2011)
- NBP BMP Third Party Auditor Guidance (August 2011)
- NBP Guidance for Biosolids EMS Interim Audits (August 2004, May 2006)
- NBP Code of Good Practice

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NBP Manual of Good Practice
DEKRA Biosolids EMS Verification Audit Report (October 2011)
DEKRA NBP BMP Interim Audit Report (November 2012, 2013)

2F. Additional Information

Further information about this audit and/or the EBMUD BMP can be obtained from EBMUD by contacting Ms. Alicia Chakrabari, EBMUD BMP Coordinator, at achakrab@ebmud.com.

3. SUMMARY OF AUDIT RESULTS

3A. Verification Conclusion

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

3B. Strengths Observed

During this audit, strengths were observed in the following areas:

- EBMUD management implements a comprehensive and effective program throughout all staff and management levels, across interdepartmental levels, and interested parties.
- Management is proactively involved with local community leaders, which allows for opportunities for comments/feedback and accurate information dissemination.
- The Corrective and Preventive Action (CAPA) process was used to determine the need for additional flaring capacity and a new capital project to construct additional flares.
- EBMUD is continually engaged and well-respected by the professional community.
- Systems are in place to implement new regulations and provide continuous refresher training on Standard Operating Procedures (SOPs).
- There has been significant improvement in the collaborative working relationships between management and staff/operators by providing meaningful applications of the BMP at the user level.

3C. Nonconformances

No major nonconformances were found during this audit; however, there was one minor nonconformance. There was a missing CAPA item (#14-01) to document preventive maintenance work assignments for inspection and maintenance for the flare condensate system. In addition, no training or SOPs were provided to operations staff regarding use of the new flare drip trap inspection valves on the condensate system.

3D. Agreements

EBMUD will conduct the next Interim Audit in September 2015. This audit will be conducted as a third-party audit. Interim Audits will continue to follow the Interim Audits Program agreed by EBMUD's third-party auditor and EBMUD.

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4. MANAGEMENT PROGRAM DYNAMICS

Review of the management system dynamics and outcomes is intended to verify that the biosolids management program is functioning effectively and generating positive outcomes (results) and that changes are being incorporated into the system. Review of the dynamics of the EBMUD BMP confirmed that it is functioning effectively and generating positive outcomes.

The following summarizes EBMUD's review of the dynamics of BMP:

4A Significant Changes

There was one significant change affecting the EBMUD BMP since the previous third party audit. There was an organizational change with a new BMP Coordinator beginning in August 2014.

4B Effectiveness Reviews

Goals and Objectives Process

- An effectiveness review is conducted annually at the Steering Committee/BMP Team meeting to drive continuous improvement and performance. Goals and objectives are continually reviewed to determine if they are appropriate. If actions are not met, strategies are re-evaluated to determine if different priorities are necessary.
- Nearly every goal and objective contains an element of improvement and performance-based outcomes.

Management Review

- Various levels of management are integral within BMP Team, Steering Committee, and Senior Management Team.
- The process-based BMP approach is successful in the context of EBMUD's management organizational structure.
- Roles and responsibilities have been well established since the inception of the Biosolids Policy adopted by the Board of Directors.
- There has been significant improvement in the collaborative working relationships between management and staff/operators by filtering relevant and meaningful applications of the EMS at the user level, thereby gaining acceptance and buy-in at all team levels.

Corrective and Preventive Action Process

- Two air permit violations in 2013 led to investigations of root cause analysis through the CAPA process.
- The CAPA process led to greater monitoring of gas production and managing/optimizing truck waste deliveries to the digesters so corrective actions

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can be taken before a violation occurs. Also, the analysis demonstrated the need for additional flaring capacity and served as the basis for a new capital project to construct new flares.

Communications Program

- NBP minimum conformance requirements are met for internal/external parties.
- Procedures and mechanisms are established to receive, respond, and address external party comments and issues.
- Management is proactively involved with local community leaders, which allows for opportunities for comments/feedback and accurate information dissemination.

Internal Audits

- An abbreviated CAPA process is successfully used to track and monitor corrective actions.
- The BMP Team and Steering Committee are provided adequate review of audit results and summaries.

4C Examination of Outcomes

The following outcomes within the past year have been identified:

Relations with Interested Parties

- Management is proactively involved with local community leaders, which allows for opportunities for comment/feedback and accurate information dissemination.
- There is a comprehensive procedure to receive and process public complaints (mainly odor issues) from the hot line, call center, email, or direct phone line to the shift supervisors.

Quality Practices

- There is a comprehensive inspection and monitoring program for the “cradle to grave” handling of biosolids.

Environmental Performance

- The CAPA process led to greater monitoring of gas production and managing/optimizing truck waste deliveries to the digesters so corrective actions can be taken before a violation occurs. The analysis also demonstrated the need for additional flaring capacity and served as the basis for a new capital project to construct new flares.

Regulatory Compliance

- There is good operational monitoring to meet regulatory thermophilic limits and detention time reporting limits by creating a buffer for the process before exceeding any 503 compliance limits.

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4D Interested Party Interviews

During this audit, EBMUD interviewed the US EPA regulator, a representative of CASA, and representatives from the San Francisco Public Utilities Commission (SFPUC). All parties noted the availability of BMP materials, receipt of EBMUD's performance report and EBMUD's open communication. SFPUC noted that they are basing their program on EBMUD's BMP and is utilizing EBMUD's manual and critical control point diagram as templates for their documentation.

5. PROCESS SYSTEM AUDITS

5A Summary

EBMUD audited the following processes that the program 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
Communication Program, Interested Parties (Elements, 6, 9, 15)	Conforms
Compliance Program, Environmental, Legal, Others (Elements 4, 13)	Conforms
Pretreatment & Collection (Elements 3, 10, 11, 13)	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.

- Ensure that Customer Service Call Center is included on the internal communication list and the level of training is current to handle public complaints on BMP issues, such as odors.
- Request courtesy copies of inspection reports from the biosolids haulers, as necessary.

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APPENDICES

List of Participants

The following people participated in this audit. Additional people provided additional explanations, as needed.

East Bay Municipal Utility District Personnel

Ike Bell	Plant Maintenance Superintendent
Alicia Chakrabarti	Senior Civil Engineer, Wastewater Planning/BMP Coordinator
Antoine Chamsi	Quality Assurance Officer, Laboratory Services Division
Vince De Lange	Manager of Wastewater Engineering
Christian Dembiczak	Senior Environmental Health & Safety Specialist, Regulatory Compliance
David Freitas	Wastewater Treatment Superintendent
Florencio Gonzalez	Supervising Wastewater Control Inspector, Field Services
Mary Harvey	Environmental Health & Safety Specialist II, Workplace Health & Safety
Kurt Haunschuld	Manager of Wastewater Treatment
Karen Hurst	Supervising Wastewater Control Representative, Industrial Discharger
Jennifer Ku	Assistant Engineer, BMP Team Member
Carol Weir	Wastewater Operations Coordinator
Linda Winters	Wastewater Shift Supervisor
Chuck Wittor	Wastewater Control Inspector II

Interested parties

Lauren Fondahl	Biosolids Coordinator, U.S. Environmental Protection Agency
Greg Kester	Director of Renewable Resource Programs, California Association of Sanitation Agencies

Third Party Observers

Karla Guevarra	Process Engineer, San Francisco Public Utilities Commission, Wastewater Enterprise
Bonnie Jones	Senior Engineer, San Francisco Public Utilities Commission, Wastewater Enterprise
Adrian Santiago	Regulatory Specialist, San Francisco Public Utilities Commission, Wastewater Enterprise

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List of Documents & Records Reviewed

EBMUD Biosolids Management Goals & Objectives 2014 – 2015
EBMUD Biosolids Management Policy 8.02, Aug. 12, 2014
EBMUD BMP Manual, Oct. 22, 2013
EBMUD BMP Joint Team & Steering Committee Meeting Agenda & Handouts, Oct. 16, 2014
EBMUD BMP website
EBMUD Corrective and Preventive Action Issues, Summary Log, Nov. 2013 – Oct. 2014
DEKRA Biosolids EMS Verification Audit Report, Oct. 2011
DEKRA NBP BMP Interim Audit Report, Nov. 2012, Nov. 2013
EBMUD Goals & objectives tracking records, 2014 – 2015
EBMUD Internal audit results summary 2014
EBMUD Semi-annual Internal BMP Newsletter, Sept. 2014

END OF REPORT