



**National Biosolids Partnership  
Biosolids Management Program Interim Audit Report**

**Camden County Municipal Utility Authority  
Camden, NJ**

Audit Dates: February 1 - 5, 2016

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

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

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Report Date: February 29, 2016

Reviewed By: Andy Kricun, CCMUA (February 21, 2016)

Approved By: Michelle Hunn, DEKRA Certification, Inc. (February 22, 2016)

# Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

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## Table of Contents

<b>1. EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>2. AUDIT DETAILS .....</b>	<b>4</b>
2A. Local Agency Details .....	4
2B. Audit Criteria .....	4
2C. Audit Team .....	4
2D. Audit Scope and Locations .....	5
2E. Audit Methodology .....	6
2F. Reference Materials .....	6
2G. Definitions of Audit Findings & Required Corrective Action .....	6
2H. Additional Information .....	6
<b>3. SUMMARY OF AUDIT RESULTS .....</b>	<b>7</b>
3A. Verification Conclusion .....	7
3B. Strengths Observed .....	7
3C. Audit Findings – Nonconformances .....	7
3D. Opportunities for Improvement .....	8
3E. Appeals .....	8
3F. Agreements / Next Steps .....	9
<b>4. DETAILED AUDIT RESULTS .....</b>	<b>10</b>
4A. Biosolids Management Dynamics Review .....	10
4B. Examination of Outcomes .....	11
4C. Process Audits .....	11
4D. Review of Nonconformances from Prior Audits .....	12
4E. Use of NBP Certification and DEKRA Verification .....	13
<b>APPENDICES .....</b>	<b>14</b>
List of Participants .....	14
List of Documents & Records Reviewed .....	14

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### 1. EXECUTIVE SUMMARY

DEKRA Certification, Inc. (DEKRA) conducted an independent third party audit of the environmental management system (EMS) being used by the Camden County Municipal Utility Authority (CCMUA) in managing its biosolids program. The audit was conducted at CCMUA's request February 1 to 5, 2016 as part of an integrated audit covering requirements of ISO-14001:2004 and the National Biosolids Partnership (NBP) BMP Elements. The audit was a Reverification Audit as required within the NBP Biosolids Management Program for Certification by NBP.

#### Audit Purposes

This Reverification Audit was conducted to:

- Confirm that the CCMUA biosolids management program is functioning effectively, with practices and procedures being performed as documented.
- Verify that the biosolids management program being used by CCMUA meets National Biosolids Partnership (NBP) expectations and conforms with requirements of the NBP BMP Elements.
- Examine outcomes CCMUA is achieving by using a systematic approach for managing its biosolids program.
- Verify the effectiveness of corrective action taken in response to open nonconformances from previous third party audits.

#### Summary of Audit Activities and Results

DEKRA reviewed CCMUA's Biosolids Management Program and audited that program for conformance with expectations and requirements of the NBP Biosolids Management Program Elements (audit criteria). The audit scope was consistent with NBP requirements, as stated in the NBP Auditor Guidance (2011).

No major nonconformances and five minor nonconformances with respect to the audit criteria were found during this audit. CCMUA has developed corrective action plans to address the nonconformance that have been approved by DEKRA's Lead Auditor. DEKRA will review the effectiveness of the completed corrective actions during the next third party audit.

#### Audit Conclusions

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

- Use of a management system approach is generating positive outcomes for CCMUA's biosolids program in the areas of regulatory compliance, environmental performance, quality practices and relations with interested parties.
- CCMUA biosolids practices are consistent with NBP expectations and meet requirements of the NBP BMP Elements, with minor exceptions.
- All nonconformances from prior DEKRA audits have been effectively corrected.

This audit has verified that the CCMUA biosolids management program meets NBP expectations and requirements and we recommend Recertification within NBP Biosolids Management Program.

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### 2. AUDIT DETAILS

#### 2A. Local Agency Details

Agency Name: Camden County Municipal Utility Authority (referred to as CCMUA in this report)

Facility: Delaware #1 Wastewater Treatment Facility, Camden NJ

Number of Employees (approximate) = 100 (including onsite contractor)

Volume of Wastewater Treated (approximate): = average 57 MGD (dry weather), design 80 MGD

Biosolids Produced (approximate): approx 160 wet tons per day (cake) + 40 dry tons per day Class A (approx 30% / 70% split average)

Biosolids Use / Disposition – dried solids are sent to landfill; wet cake is sent to incinerators

#### CCMUA Biosolids Program

CCMUA's Biosolids Program includes defined processes for Pretreatment, Wastewater Treatment, Solids Dewatering, Biosolids Storage and Transportation and Biosolids Use, including incineration, and landfill. CCMUA manages their biosolids program using a management system approach based on its Environmental Management System (EMS).

#### Contractors Participating in Audit

Synagro Inc.

Atlantic City Municipal Utility Authority (Atlantic City NJ)

#### Interested Parties Interviewed

The following interested parties were interviewed to verify the effectiveness of the Communications, Public Participation and Compliance processes.

- Valeria Galazara (YMCA)
- Franklin Mc Laughlin (NJDEP)
- Meishka Mitchell (Coopers Ferry Partnership)
- Sabina Penske – USEPA Region 2
- Chris Harris (ACMUA Director of Operations)

#### 2B. Audit Criteria

The CCMUA biosolids program activities were assessed against requirement of the NBP BMP Elements (July 2011) and the CCMUA EMS.

#### 2C. Audit Team

CCMUA authorized DEKRA Certification Inc. to conduct this Third Party Audit of their biosolids program. DEKRA is an accredited Third Party Audit Company within the NBP Biosolids Management 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 and the auditor assigned to this audit have an independent relationship with CCMUA that meets NBP criteria for Third Party Auditors.

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### 2D. Audit Scope and Locations

The audit was consistent with NBP requirements for Reverification Audits and the Scope of Work agreed by CCMUA and DEKRA. It was conducted as an integrated audit covering requirements of ISO-14001:2004 and the NBP BMP Elements (July 2011), with special attention to practices and management activities that directly support biosolids-related operations, processes and activities.

The audit scope included the following:

1. Management System Dynamics
  - Management of Significant Changes
  - Demonstrated Biosolids Policy Commitments
  - Effectiveness Reviews:
    - Management Review Process
    - Corrective & Preventive Action Process
    - Goals & Objectives Process

2. Process Audits

The following processes were audited.

- Biosolids Preparation (+ drying)
  - Biosolids Use – incineration at Atlantic City MUA
  - Communication
  - Competence, Awareness, Training
  - Compliance Obligations
  - Control of Documents & Records
  - Control of Suppliers & Contractors
  - Corrective Action
  - Emergency Preparedness & Response
  - EMS Documentation
  - EMS Planning
  - Environmental Risks & Aspects (including critical control points)
  - Internal Audits
  - Management Involvement
  - Monitoring, Measurement, Analysis
  - Objectives, Targets & Programs
  - Pretreatment
  - Wastewater Treatment & Effluent Discharge
3. Examination of outcomes being achieved in the areas of regulatory compliance, interested party relations, environmental performance and quality practices.
  4. Verification of effective correction of open nonconformances from previous Third Party audits (January 2015)

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### 2E. Audit Methodology

The audit was conducted by qualified auditors following guidelines stated in the NBP Auditor Guidance (August 2011). The auditor observed practices in place, interviewed key persons and reviewed pertinent documents and records using sampling techniques to assess the systematic performance of the process being audited and the consistency of biosolids management practices with written procedures. This audit is not a verification of compliance with any legal requirements applicable to biosolids practices performed by the agency or its contractors.

### 2F. Reference Materials

The following documents were used as references during this audit:

CCMUA EMS Manual (August 2011)

National Biosolids Partnership “BMP Elements” (July 2011)

National Biosolids Partnership Biosolids EMS Third Party Auditor Guidance (August 2011)

National Biosolids Partnership Code of Good Practice

National Biosolids Partnership Manual of Good Practice

### 2G. 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. For verification to continue, major nonconformances must be corrected and verified by third party audit within 90 days.

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 third party auditor during the next third party audit.

Opportunity (for improvement) – a possible improvement in the management system based on audit observations. There is no obligation for action in response to these observations.

### 2H. Additional Information

Further information about this audit and/or the National Biosolids Partnership Biosolids Management Program can be obtained from Camden County Municipal Utility Authority. Contact Mr. Andy Kricun (e-mail: andy@ccmua.org).

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### 3. SUMMARY OF AUDIT RESULTS

#### 3A. Verification Conclusion

Based on results of this audit, DEKRA has verified that the CCMUA biosolids management system is functioning effectively and meets NBP expectations and requirements of the NBP BMP Elements, with minor exceptions. We recommend Recertification within the NBP Biosolids Management Program.

#### 3B. Strengths Observed

During this audit, DEKRA noted the following strengths in the CCMUA biosolids management system.

- Leadership by CCMUA in the Camden Collaborative Initiative is an excellent example of proactive outreach and public participation.

#### 3C. Audit Findings – Nonconformances

The following minor nonconformance was identified during the audit. CCMUA has prepared corrective action plans for each nonconformance and those plans have been approved by the Lead Auditor. Numbering may not be consecutive since nonconformities that relate to ISO-14001 only are not included.

Minor Nonconformity JS/16-01 ISO-14001 4.2 & NBP BMP Element 2 require that management ensure the Environmental Policy is communicated to all persons working for or on behalf of the organization.

Interviews with 2 Operations Managers and the onsite Synagro Plant Manager (biosolids dryers) revealed they were not aware of the basics of the Environmental Policy (also known as Sustainability Policy) stated in the EMS Manual.

Minor Nonconformity JS/16-02 ISO-14001 4.3.3 & NBP BMP Element 5 require the organization to establish, implement and maintain programs for achieving objectives and targets.

While programs for achieving objectives are understood and tracked, there is no evidence that describes plans for achieving the 2016 objectives.

Minor Nonconformity JS/16-03 ISO-14001 4.4.5 and NBP BMP Element 12 require the organization to control documents required by the management system and by ISO-14001.

Documents that require control and methods for controlling these documents are noted in general in the EMS Manual, however specific documents and control methods and responsibilities are not identified.

Minor Nonconformity JS/16-04 ISO-14001 4.4.6 and NBP BMP Element 10 require the organization to identify and plan operations associated with significant environmental aspects to ensure they are carried out under specified conditions, by establishing, implementing and maintaining documented procedures where needed.

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

The Biosolids Drying operation can contribute to odors and other significant environmental aspects, however CCMUA does not review SOPs prepared for use by the contractor (Synagro) for operating the biosolids drying process.

Minor Nonconformity JS/16-06 NBP BMP Element 3 requires the organization to identify potential or actual environmental impacts at each critical control point.

The environmental risks shown on the critical control point table are not consistent with those identified in the environmental risk analysis & identification of significant environmental risks.

### 3D. Opportunities for Improvement

The following “opportunities” for improving the CCMUA EMS were noted during the audit. Opportunities do not represent nonconformances and CCMUA has no obligation to take any action in response to them.

- The “desired goals” (EMS Manual 2.2) could more clearly state results that CCMUA wants to achieve by using an EMS
- Internal & external issues are well understood. Suggest adding these to EMS Planning.
- Objectives and targets for improving environmental performance could include a description of the measurable improvement being sought.
- “All staff” meetings could include discussion(s) to continue awareness of the importance of conformity with the Environmental Policy and EMS requirements.
- When writing SOPs consider adding a) information about the purpose of the procedure, b) qualification requirements for persons performing the procedure, c) risks and impacts associated with the procedure, d) steps and criteria for proper use and e) consequences of not following the procedure.
- Emergency Response plans could include steps for pre-emergency planning and post-emergency action.
- Incident investigations (e.g. Biofilter Building Fire 4/21/14) could follow and use the Corrective Action Process, particularly for identifying possible similar problems elsewhere and for identifying and correcting causes.
- The internal audit program could include a schedule for process audits over the next 2 or 3 years, while allowing opportunity for audits that management determines necessary.

### 3E. 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 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 date of this audit report. Information about the appeals process is available from the National Biosolids Partnership. Contact Ms. Lisa McFadden at [lmcfadden@wef.org](mailto:lmcfadden@wef.org).



## **Biosolids Management Program Reverification Audit Report**

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### **3F. Agreements / Next Steps**

CCMUA will prepare and implement approved Corrective Action Plans (including root cause & planned action) for each nonconformance. Dekra will verify the effectiveness of the completed corrective actions at the next Third Party Audit.

The next audit of the CCMUA biosolids program will be an Interim Audit in January 2017. It will be conducted as an integrated audit covering requirements of the NBP BMP Elements and ISO-14001:2015.

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### 4. DETAILED AUDIT RESULTS

The following outlines results of DEKRA's audit of processes used in managing the CCMUA biosolids program and the level of conformance with applicable requirements of the NBP BMP Elements.

#### 4A Biosolids Management Dynamics Review

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 the CCMUA biosolids management system.

##### Significant Changes

No significant changes have occurred in the past year affecting the CCMUA biosolids program. Initiatives are being planned to install anaerobic digesters and to capture off-gas for use in generating electricity.

##### BMP Documentation

The EMS Manual, top-level documentation and major processes within the biosolids management system were reviewed. There were no structurally significant revisions. The manual is consistent with requirements of the NBP BMP Elements.

##### BMP Policy

The CCMUA Environmental Management Policy was updated in February 2013 to apply to the full site EMS. The Policy includes a commitment to follow the principles of the NBP Code of Good Practice. During this Interim Audit, DEKRA's Lead Auditor reviewed performance of CCMUA biosolids program and found biosolids activities to be consistent with commitments made in the Policy and the principles of NBP's Code of Good Practice.

##### Communications Program

The BMP communications and public outreach program continues as a top priority. Active participation in the Camden Collaborative Initiative provides opportunity for two-way communication with several interested parties, including public representatives and regulatory agencies.

##### Goals and Objectives

Environmental goals include targets for improving the CCMUA BMP, including external communication. Objectives are set annually and progress in achieving the targets is monitored and reviewed. The Goals and Objectives process is functioning effectively.

##### Internal Audits

Internal audits were conducted in January 2016, April 2015 and February 2013. A master plan template is used to plan the internal audits. The Internal Audit process is functioning effectively.

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

### Corrective & Preventive Action

The Corrective and Preventive Action process is being used effectively to address internal and external audit findings.

### Management Reviews

The EMS Team meets as required to address biosolids program performance and to plan ongoing improvements. Informal discussions occur between team members related to environmental performance and operational improvements. The Management Review process is functioning effectively.

## **4B Examination of Outcomes**

The CCMUA biosolids program is improving using their management system. The following outcomes within the past two years were confirmed.

### Regulatory Compliance

Effluent quality has been sustained at well below permit levels for past 3 years (e.g. <10ppm tss, <5ppm BOD compared to permitted 30ppm & 25ppm).

### Environmental Performance

A contract has been arranged for capturing heat from incoming sewage and using this heat in processes and building heating.

Odor complaints continue to be reduced. 7 complaints in 2015 compared to 20 in 2014.

### Quality Practices

CCMUA has taken a leadership role in NAQWA “Clean Industry of the Future” initiative for developing best practices in wastewater treatment.

Planning underway to proceed to digested biosolids (anaerobic) to enable more beneficial end use.

### Relations with Interested Parties

CCMUA leadership in the Camden Collaborative Initiative has led to several improvements in Camden area (e.g. 18 major green infrastructure projects, opening of Phoenix Park, installation of 50 Raingardens for eliminating water runoff).

The “Green Ambassador” program led by CCMUA is widely accepted for involving local high school students in environment, education and employment.

## **4C Process Audits**

DEKRA audited the following processes that CCMUA uses within its biosolids management program. The level of conformance of each process with NBP expectations and requirements is summarized in the following table. See Section 3 of this report for detailed findings.

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

Process	Key BMP Elements*	Conformance with Applicable BMP Elements
Biosolids Preparation (+ drying)	3, 8, 10, 13	Conforms, except as noted in Minor Nonconformance 16-04
Biosolids Use (incineration at ACMUA)	3, 10, 16	Conforms
Communication	6, 9, 15	Conforms
Competence, Awareness, Training	7, 8	Conforms
Compliance Obligations (	4, 13, 14	Conforms
Control of Documents & Records	12	Conforms, except as noted in Minor Nonconformance 16-03
Control of Suppliers & Contractors	various	Conforms
Corrective Action	14	Conforms
Emergency Preparedness & Response	3, 11.14	Conforms
EMS Documentation	1, 12	Conforms
EMS Planning	6, 7, 8, 17	Conforms
Environmental Risks & Aspects (including critical control points)	3, 10	Conforms, except as noted in Minor Nonconformance 16-06
Internal Audits	14, 16	Conforms
Management Leadership	2, 7, 17	Conforms, except as noted in Minor Nonconformance 16-01
Monitoring, Measurement, Analysis	13, 17	Conforms
Objectives, Targets & Programs	6, 5	Conforms, except as noted in Minor Nonconformance 16-02
Pretreatment	3, 8, 10, 13	Conforms
Wastewater Treatment & Effluent Discharge	3, 8, 10, 13	Conforms

\* BMP Elements are shown to demonstrate that all 17 Elements of the NBP BMP were included in this Reverification Audit.

#### 4D Review of Nonconformances from Prior Audits

Four minor nonconformances remained open from the previous DEKRA audit in January 2015. As a result, CCMUA took corrective action and DEKRA reviewed the effectiveness of that corrective action during this Reverification Audit. The results of that review are noted below

Minor Nonconformance JS 15-01/8 NBP BMP Element 8 requires the organization to establish and maintain a training program, including general awareness of the BMP, to ensure employees

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

---

responsible for specific biosolids management activities are competent in performing their assigned tasks and duties. A new contractor Supervisor now working at the CCMUA plant regularly has not received awareness training in the CCMUA EMS or its biosolids policy and goals.

Corrective Action: CCMUA determined that this nonconformance was caused by timing (audit conducted soon after contractor employee arrived). As a result CCMUA conducted EMS training for all employees, including a newly appointed Synagro Plant Manager. Evidence of completion of this action was reviewed and the action was found to have effectively corrected the problem and addressed the cause. This nonconformance is now closed.

Minor Nonconformance JS 15-02/10 NBP BMP Element 10 requires the organization to maintain operational controls at critical control points, including process control systems. The automated process control system is not protected against unintended intrusion (e.g. no password protection).

Corrective Action: CCMUA determined that this nonconformance was caused by a management oversight. As a result CCMUA developed a protocol that requires approval to change process controls. Evidence of completion of this action was reviewed and the action was found to have effectively corrected the problem and addressed the cause. This nonconformance is now closed.

Minor Nonconformance JS 15-03/14 NBP BMP Element 14 requires the organization to establish formal corrective action plans to address the findings of internal BMP audits.

Findings from the internal audit in January 2014 were not linked to the Corrective Action process.

Corrective Action: CCMUA determined that this nonconformance was caused by management oversight. As a result CCMUA added requirements that all internal audit findings be reviewed by the EMS Team. Evidence of completion of this action was reviewed and the action was found to have effectively corrected the problem and addressed the cause. This nonconformance is now closed.

Minor Nonconformance JS 15-04/17 NBP BMP Element 17 requires the organization to review the BMP and its performance relative to policy commitments. The Management Review conducted December 2014 did not address the Biosolids Policy commitments.

Corrective Action: CCMUA determined that this nonconformance was caused by not following the procedure documented in the Biosolids EMS Manual. As a result CCMUA reviewed procedures for management reviews with the EMS Team and proceeded with the correct procedure at the next Management Review. Evidence of completion of this action was reviewed and the action was found to have effectively corrected the problem and addressed the cause. This nonconformance is now closed.

### 4E Use of NBP Certification and DEKRA Verification

Use of and references to NBP Certificate and DEKRA Verifications were reviewed. There were no concerns.

## Biosolids Management Program Reverification Audit Report

Camden County Municipal Utility Authority, Camden NJ

Audit Dates: February 1 to 5, 2016

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### APPENDICES

#### List of Participants

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

#### CCMUA Personnel

Doug Burns, Chief Accountant / EMS Coordinator  
Bob Cornforth – Director Collections  
Jack Connolly – Director Operations & Maintenance  
Mark Kollman – Plant Manager (Synagro)  
Andy Kricun, Executive Director / Chief Engineer  
Kim Michelini – Secretary to Board  
Woodrow Minner – Director Safety  
Gayle Pagano – Chief Division Regulatory Compliance  
Scott Schreiber, Planning Administrator

#### List of Documents & Records Reviewed

Annual report 40CFR503	Master list of controlled records 4/20/15
Biofilter Fire Investigation report 4/14/14	NJDEP Compliance evaluation 1/8/16
CPAR (various)	Objectives 2016, 2015
Discharge prevention plan 10/2/13	Operations report 2015
Dryer Feed Report January 2016	Operations report November 2015
Emergency Action Plan (Synagro)	Process control points table (undated)
Emergency response plan CCMUA 6/15	RTK survey 2014
EMS Manual 2015	Service contract 10/27/14
EMS Performance report 2014	Significant environmental aspects / risk assessment 1/29/16
Environmental Policy 2/7/13	SOPs ACUA (various)
Influent & Effluent performance charts monthly 2015	SOPs CCMUA (various)
Internal audit reports 1/28/16, 4/10/15, 2/10/15	SOPs Synagro (various)
Lab data January 2016	
Management review 1/28/16	

**END OF REPORT**