



**National Biosolids Partnership
Biosolids EMS Audit Report**

**Encina Wastewater Authority
Carlsbad, CA**

Interim Audit #4

Audit Dates: December 10, 2009

Audit Conducted By:

KEMA-Registered Quality, Inc. (Chalfont, PA)

Auditor: Mr. Jon Shaver, Biosolids EMS Lead Auditor

Report Written By: Jon Shaver, Biosolids EMS Lead Auditor / Biosolids Auditor

Report Date: Draft December 24, 2009



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1. EXECUTIVE SUMMARY

KEMA-Registered Quality Inc. (KEMA) conducted an independent audit of the environmental management system (EMS) being used by the Encina Wastewater Authority (EWA) in managing its biosolids program. The audit was performed offsite on December 10, 2009 at the request of the National Biosolids Partnership and was interim audit #4 following verification of the EWA biosolids program in 2005.

The purposes of this audit were to:

- Verify that the biosolids EMS being used by EWA, or parts of it, conform to requirements of the National Biosolids Partnership (NBP) *Environmental Management System for Biosolids*, comprised of 17 EMS Elements
- Assess the internal audit performed by EWA as a valid interim audit substitute for third party audit.

This scope of this audit was consistent with the proposed scope of work submitted by KEMA and agreed upon by NBP, EWA and KEMA.

During the audit KEMA reviewed several processes and activities used by EWA in managing its biosolids program and assessed the conformance of these processes with expectations and requirements of the National Biosolids Partnership EMS Elements.

During this audit, KEMA identified two (2) new minor nonconformances and correction of these and other open nonconformances from previous third party audits will be reviewed during the next third party audit, which is currently planned to occur in September 2010.

The internal audit conducted in April / May 2009 reported twelve “findings needing correction”. Corrective actions are completed for most of those findings and underway for all others.

The audit determined that:

- The EWA biosolids management system meets requirements of NBP’s EMS Elements with two minor exceptions (nonconformances).
- The internal audit conducted by EWA in May 2009 is a valid audit and can be used as a substitute for a third party interim audit.
- Some “opportunities for improvement” were noted.

As a result of this audit, KEMA has verified that the biosolids management system being used by EWA meets the expectations and requirements of the NBP EMS Elements and we recommend continued NBP certification of that management system.

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2. AUDIT DETAILS

2A. Local Agency Details

Agency Name: Encina Wastewater Authority, Carlsbad, California (referred to as EWA in this report)

Number of Employees = 64

Biosolids Production Sites Audited: Encina Wastewater Plant, Carlsbad CA

Volume of Wastewater Treated = 43 MGD (capacity)

Biosolids Produced = Total 19 dry tons per year pelletized Class A biosolids; Class B when heat dryer is offline

2B. Audit Team

The National Biosolids Partnership assigned KEMA-Registered Quality Inc. to perform this audit on their behalf. Mr. Jon Shaver conducted the audit for KEMA. Mr. Shaver is certified by NBP as a Biosolids EMS Lead Auditor and Biosolids Auditor. KEMA asserts that our firm and auditors have an independent relationship with the Encina Wastewater Authority that meets criteria established by the National Biosolids Partnership for Third Party Audit Companies and Auditors.

2C. Audit Scope and Methodology

The scope of this audit covered parts of the EWA biosolids program, which encompasses pretreatment, biosolids stabilization, storage and transportation and end use / disposition, with special attention to practices and management activities that directly support biosolids-related operations, processes and activities.

The audit included the following topics, consistent with NBP requirements for biosolids EMS interim audits and the overall audit program agreed to by KEMA and EWA.

1. Review of EWA Internal Audit for consistency with NBP interim audit requirements (audit report dated November 10, 2009)
2. Review significant changes affecting the EWA biosolids management program, including
 - Introduction and use of 2 new contractors participating in EWA biosolids management activities, namely Cemex and Terra Renewal
 - Implementation of biosolids pelletizing operation and use of biosolids pellets

The audit was conducted by interviewing the EWA EMS Coordinator and reviewing pertinent documents and records. It was performed using sampling techniques in a manner that is consistent with the NBP Auditor Guidance (August 2007) and KEMA's Biosolids EMS Audit Planning Guide.

2D. Reference Materials

The following documents were used as references during this audit:

Biosolids EMS Audit Report
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EWA EMS Manual (current version)
National Biosolids Partnership "EMS for Biosolids" standard (May 2002)
National Biosolids Partnership Biosolids EMS Third Party Auditor Guidance (August 2007)
National Biosolids Partnership Code of Good Practice
National Biosolids Partnership Manual of Good Practice

2E. 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. Major nonconformances must be corrected within 90 days for verification to proceed.

Minor Nonconformance – an isolated departure from requirements that does not represent a systemic failure. Minor nonconformances require timely and effective correction and verification by a Third Party Auditor.

Opportunity (for improvement) – possible improvement in the EMS based on auditor observations. There is no obligation for action in response to these observations.

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3. SUMMARY OF AUDIT RESULTS

3A. EMS Strengths

During this audit KEMA noted the following strengths in the EWA biosolids management system.

- The internal audit performed by EWA in April / May 2009 was comprehensive and findings were well documented.

3B. Nonconformances

During this audit, KEMA found two (2) minor nonconformances with respect to the audit criteria, as described below and in the “Audit Results” section of this report. Review of these nonconformances determined that they do not represent a systemic deficiency. Corrective Action Plans prepared by EWA addressing each nonconformance identified were reviewed by KEMA’s Lead Auditor and found to be acceptable. The effectiveness of corrective actions will be verified during the next scheduled third party audit.

The nonconformances found are listed below:

Minor Nonconformance JS/09-01/Elem 14 NBP EMS Element 14 and EWA EMS Element 16 require that nonconformances found during internal audits be investigated, with cause and corrective action identified and documented. Causes and corrective action plans were not documented for some of the “findings needing correction”, even though they were investigated and corrected.

Minor Nonconformance JS/09-02 / Element 12 NBP EMS Element 12 requires that contractors be required to control documents and records. Contracts, or equivalent agreements, with Solid Solutions and Cemex do not include requirements to control (pertinent) documents.

3C. Opportunities for Improvement

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

Internal Audits

- Related “findings needing correction” found during internal audits (e.g. need for SOPs) could be grouped for analyzing root cause and determining appropriate corrective action to prevent a recurrence.

Significant Change – Biosolids Drying and Pelletizing

- The EMS Corrective Action Request procedure could have been used to address a NOX permit exceedance during startup of the dryer to identify cause(s) and prevent recurrence.
- SOPs for the Heat Dryer and Regenerative Thermal Oxidizer (RTO) could include a summary of applicable legal requirements and descriptions of environmental impacts being controlled.

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Contractor Control

- Uncertainty about the legal name of Solid Solutions / Terra Renewal could be clarified to avoid potential liability concern.

3D. Verification Statement

Based on the results of this audit, KEMA has verified the management system for EWA biosolids program continues to meet the expectations and requirements of the National Biosolids Partnership Biosolids EMS Program. Continuing certification within the NBP Biosolids EMS Program is recommended.

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 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. Anyone who may need help in understanding the appeals process should contact the National Biosolids Partnership staff, Mr. Eugene DeMichele at 703-684-2438, or by e-mail: edemichele@wef.org.

An appeal process is available to persons concerned about the methods and/or scope of this audit. Further information about this appeal process can be obtained directly from KEMA (contact Pierre Salle, pierre.salle@kema.com or Jon Shaver jon.shaver@kema.com) or from NBP (contact Eugene DeMichele, edemichele@wef.org).

3F. Agreements

EWA has developed written plans for correcting all nonconformances found during this audit. KEMA's Lead Auditor has reviewed those corrective action plans and determined that once effectively implemented they will correct the identified nonconformance. EWA will implement the approved plans in a timely manner and review the corrections internally within 6 months. The effectiveness of actions taken to correct nonconformances will be verified during the next assigned third party audit.

EWA and KEMA have agreed that the next audit, a Reverification Audit, will occur in September 2010 and be conducted as a Third Party Audit. EWA will make arrangements for the timing and scope of that audit through the National Biosolids Partnership.

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4. AUDIT OBSERVATIONS + RESULTS

The following describes the results of KEMA's audit of specific processes EWA uses in managing biosolids activities and the level of conformance of each process with applicable requirements of the National Biosolids Partnership EMS Elements. Nonconformances remaining open are noted. EWA has prepared Corrective Action Plans for those nonconformances and KEMA's Lead Auditor has approved those plans.

4A Internal Audit

An internal audit was conducted in April / May 2009 by a team of selected EWA employees. The audit addressed specific processes that EWA uses in managing its biosolids program, consistent with the Interim Audits Program developed by KEMA and EWA. The internal audit also assessed performance in meeting policy commitments, including the Code of Good Practice, and reviewed the effectiveness of the Goals and Objectives process. Results were reported to management orally immediately following the audit and in writing on November 10, 2009. The audit identified twelve (12) "findings needing correction", of which most were immediately corrected.

Audit Result

The internal audit conducted by EWA included all requirements for use as an interim audit within the NBP Biosolids EMS Program and is a valid substitute interim audit. The process was found to be functioning effectively and meet applicable NBP expectations and requirements, except as noted below.

Minor Nonconformance JS/09-01/Elem 14 NBP EMS Element 14 and EWA EMS Element 16 require that nonconformances found during internal audits be investigated, with cause and corrective action identified and documented. Causes and corrective action plans were not documented for some of the "findings needing correction", even though they were investigated and corrected.

In addition, the following opportunities were noted:

- Related "findings needing correction" found during internal audits (e.g. need for SOPs) could be grouped for analyzing root cause and determining appropriate corrective action to prevent a recurrence.

4B Audit - Significant Change – Biosolids Drying and Pelletizing

Biosolids heat drying and pelletizing operations started up in December 2008 and reached full operation in March 2009. Operators were trained onsite by equipment manufacturers and through hands-on training. Critical control points, applicable legal and other requirements and environmental impacts were identified. Written SOPs were developed and modified as startup proceeded and operations stabilized.

Audit Result

The above changes were found to be functioning effectively and meet applicable NBP expectations and requirements.

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In addition, the following opportunities were noted:

- The EMS Corrective Action Request procedure could have been used to address a NOX permit exceedance during startup of the dryer to identify cause(s) and prevent recurrence.
- SOPs for the Heat Dryer and Regenerative Thermal Oxidizer (RTO) could include a summary of applicable legal requirements and descriptions of environmental impacts being controlled.

4C Audit - Significant Change - Contractors

Arrangements with two new contractors involved in biosolids activities have been completed in the past year. Cemex (Victorville, CA) are contracted to use dried, pelletized biosolids as alternative fuel use in cement manufacturing. EWA inspected the Cemex site in June 2009. Follow-ups from that inspection were complied with. Cemex has SOPs, emergency plans and training programs in place and recognize their responsibilities as part of EWA's public communications program. EMS requirements are included in the Cemex / EWA contract.

Solid Solutions (aka Terra Renewal) is contracted to transport biosolids and land apply EWA biosolids). The contractor has a "Biosolids Management Plan" in place that includes SOPs, emergency plans, training programs and community outreach / communications procedures. Monthly reports are sent to EWA to record biosolids use on agriculture land. EWA inspected Solid Solutions operation in February 2009 and followed-up to confirm training programs are in place.

Audit Result

The above changes were found to be functioning effectively and meet applicable NBP expectations and requirements, except as noted below.

Minor Nonconformance JS/09-02 / Element 12 NBP EMS Element 12 requires that contractors be required to control documents and records. Contracts, or equivalent agreements, with Solid Solutions and Cemex do not include requirements to control (pertinent) documents.

In addition, the following opportunities were noted:

- Uncertainty about the legal name of Solid Solutions / Terra Renewal could be clarified to avoid potential liability concern.

4D Review of EWA Biosolids EMS Documentation

At EWA's request, and as specified in the Interim Audit Program, KEMA reviewed the documentation (EMS Manual) being used by EWA to describe their biosolids management system. The EMS Manual is structured to correspond to the 17 NBP EMS Elements. It is complete and contains procedures and other documents required by the NBP EMS Elements.

Audit Result

EWA EMS Manual was found to meet applicable NBP expectations and requirements.

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APPENDICES

List of Participants

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

<u>Name</u>	<u>Position</u>	<u>Organization</u>
Debbie Biggs	Director of Environmental Compliance / EMS Coordinator	EWA

List of Documents & Records Reviewed

Corrective Action Plans 09-04, 09-05
Critical control point table (rev 11/18/09)
Cemex inspection report June 25 2009
Cemex air permits
Cemex SOPs
Cemex biofuel agreement
Solid solutions monthly report June 2009
Internal audit report (Nov 10 2009)
Maintenance records (various)
Management review 11/18/09
Otay landfill approval 2009
Solids solutions Biosolids Management Plan 4-14-09
Solid Solutions hauling contract
Solid Solutions inspection 2/20/09
SOP 62 – Heat Drying
SOP63 – RTO Operation
SOP64 – Silo Truck Loading
SOP65 – Centrifuge polymer blending
SOP66 – Centrifuge operation

END OF REPORT