

Biosolids Internal Audit Report
City of Albany Public Works Department

Audit Conducted By:
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References:

National Biosolids Partnership (NBP) *Third Party Verification Auditor Guidance*
NBP *National Manual of Good Practice*
City of Albany *Biosolids EMS Manual*

INTRODUCTION

The purpose of the City of Albany's internal audit process is to identify areas of improvement within the Biosolids Environmental Management System (EMS) prior to and/or between third-party audits. This audit was conducted against the standards presented by the National Biosolids Partnership (NBP) through their EMS program. The goal is to collect objective evidence that the City's EMS is performing as intended, that procedures are being performed as documented, and that the EMS conforms to the NBP's *Code of Good Practice* and internal program requirements.

AUDIT SCOPE AND SCHEDULE

This initial internal audit was scheduled for the week of May 23 through 27, 2005. The internal audit team consisted of Chris Bailey, Ted Mikowski, and Sharon Olsen. Ms. Olsen was the only fully trained auditor participating in this audit and provided valuable guidance and input on audit procedures and content.

Because the EMS is newly implemented, the audit team examined the entire biosolids value chain, including all 17 elements of the EMS through a document review as well as individual and group interviews.

DOCUMENT REVIEW RESULTS

The document review took place primarily on May 23, 2005 and covered each of the 17 elements as well as associated documents. Documents were also reviewed as necessary during the verification portion of the internal audit. The selected documents were reviewed for compliance with requirements in the NBP's *Third Party Verification Auditor Guidance* manual as well as conformance to the City's *Biosolids EMS Manual*. Listed below are documents reviewed.

- City of Albany EMS Manual, Elements 1 – 17 and associated appendices
- City of Albany Biosolids Management Plan
- City of Albany NPDES Permit
- Pretreatment Program Implementation Procedures
- All SOPs listed in EMS Manual Table 3.1
- Biosolids Spill and Slug Discharge Plan
- Biosolids EMS Public Participation Plan
- List of Interested Parties
- Biosolids communication log
- Annual Biosolids Report to DEQ
- Biosolids Management Program Performance Report
- Wastewater Treatment System Improvements Pre-Design Report
- Biosolids Training Records
- Public Works Operations Training Records
- EMS Manual Table 12.1 document list and Table 12.2 records list
- Sample Hansen-generated routine work order
- Biosolids EMS management review records
- Biosolids goals/objectives action plan
- Biosolids website

FINDINGS

The results of the document review and verification audit are described in three categories: major nonconformances, minor nonconformances, and items for discussion. Major nonconformances occur when the organization has not documented a procedure sufficiently, cannot demonstrate effective implementation of a procedure, there are several minor nonconformances in any one element of the EMS Manual, or when the nonconformances point to the possibility of a systemic failure. Minor nonconformances are those that by themselves do not indicate a systemic problem. These are isolated problems that do not significantly impact the implementation of the EMS. Items for discussion are those that are not sufficiently troublesome to be labeled as nonconformances but that represent potential areas of improvement.

Major Nonconformances

- Item 4.2. The copy of the Biosolids Management Plan reviewed by the auditors was a working copy with revisions, not the version of the plan that has been approved by DEQ. The approved plan dates from 2000 and does not agree with the current state of operations. For instance, the addition of belt filter presses in 2001 means biosolids are now applied as cake whereas the approved plan describes a liquid application process. The spill procedures in the approved plan are also written for hauling of liquid biosolids and do not agree with the *Biosolids Spill and Slug Discharge Plan* presented for review.
- Items 5.1 – 5.4, 5.6. While goals and objectives have been established, most of the staff interviewed were not aware of the goals or where to find them (Item 5.1). It is unclear if the goals/objectives reflect the best management practices described in the *National Manual of Good Practice* (Item 5.2). Although the EMS manual requires input from staff on goals/objectives, none was requested (Item 5.3). The data listed in Table 5.1 in the EMS manual is not up to date (Item 5.6). The Action Plan for goals/objectives is not up to date (Item 5.7).
- Item 8.1. There is no process for identifying the training requirements of staff. There is no tracking mechanism to notify the EMS team or supervisors when employees are due for required training related to the biosolids EMS program. The training requirements as described in Table 8.1 are not correct.
- Items 10.1 – 10.4. The operational controls listed in Table 3.1 are not complete. The pretreatment procedures are listed as being in the Pretreatment Program Implementation Manual (PPIM) in the manual but are really in the Pretreatment Implementation Guide Procedures. Many of the SOPs located in the biosolids control room manual are not complete – missing the SOP name, number, revision date, review date, or thorough procedures (Item 10.1). Not all SOPs cite the appropriate legal reference (Item 10.2). It is unclear if the City considered the best management practices from the *National Manual of Good Practice* or other source (Item 10.3). Not all equipment is in the Hansen asset management software database. For instance, the application truck is not in Hansen and it is unknown if complete maintenance records exist for the truck (Item 10.4). Although staff generally agrees on the procedures for routine, preventive and emergency maintenance, there are not any written SOPs for those procedures. In those procedures, there is no

communication from the maintenance personnel back to the operators describing the outcome of the maintenance performed (Item 10.4).

- Item 12.2. It is not clear if the list of documents in Element 12 of the EMS manual is intended to be a master list of biosolids program documents. There should be a master list of documents either in this element or kept electronically and available to auditors and others. Also, many of the SOPs and the EMS Element headers are missing information required by Element 12 such as document number, revision date, or date of last review. Also, Element 12 calls the EMS manual a level 3 document but it is listed in Table 12.1 as a level 2 document. Finally, the WWTP workgroup does not have a procedure for revising SOPs or other written procedures as stated in the EMS manual.
- Items 13.1 – 13.4. Table 13.1 is incomplete (Item 13.1). While most of the monitoring is tracked via the mass balance sheets, some monitoring consists of visual checks which are not tracked by daily checklist or log thus there is no way to know if the visual checks have been performed (Item 13.2). There is no efficient way to view or analyze the data from daily monitoring. It may be more efficient to create a report that can pull data from several of the monitoring forms that are kept electronically and put it into one report that address all monitoring required for legal and other purposes (Item 13.4)
- Item 14.2 – There is no procedure to identify the cause of nonconformances and take corrective action. The Corrective Action Work Order form was created for this purpose but it is not being used effectively and may not be compatible with information that must be entered into the Hansen system.

Minor Nonconformances

- Item 3.4. The EMS team could not accurately describe how new equipment or changes to existing equipment would trigger an update to the CCPs. There is no written procedure documenting how information on the CCPs is kept up to date.
- Item 4.1. It is not clear and there is no SOP describing who tracks which regulatory and legal requirements. The process for updating others in the biosolids value chain and changing processes because of changes in the legal/regulatory requirements seems informal.
- Item 4.2. There is no written procedure that describes the application process for fields to be permitted for biosolids application by DEQ. There is also no written procedure for the City to notify land owners when their site has or has not been approved.
- Item 7.1. The organization charts presented in the EMS manual are not up to date.
- Item 8.2. The training to date has not provided information on how each employee's duties relate to the biosolids value chain.
- Item 9.5. Element 9 of the EMS manual requires goals/objectives to be placed on the website. Although the EMS manual is available through the website and it contains the goals/objectives, they are not posted separately.
- Item 16.1. Element 16 of the EMS manual requires that internal auditors receive some training on how to conduct an audit. Neither Ted nor Chris had any formal audit training prior to this audit.

Discussion Items

- Item 1.1. When asked how Albany's biosolids are produced, treated, and recycled, some staff could only answer the question relative to their role. The EMS team may want to expand training to more fully cover the biosolids cycle in Albany.
- Item 1.5. The EMS Manual contains a list of cross-references in Table 12.3 that was quite difficult for members of the EMS team to find within the manual. This table may be more easily used if it is listed separately as an Appendix.
- Item 2.3. This requirement is asking if the biosolids policy was considered when formulating goals, identifying CCPs, etc. The EMS team should examine those aspects of the biosolids program to ensure they adequately address the policy.
- Item 3.2. While all of our CCPs agree with the *National Manual of Good Practice*, the manual recommends breaking CCPs down one level further than we have done. The EMS team should discuss identifying CCPs at this more detailed level in accordance with Appendix F of the *National Manual of Good Practice*.
- Item 4.3. There is no formal process for communicating changes in regulatory requirements to the Public Works Director. Staff agrees that the Operations Manager acts as a filter deciding what is important to pass along. There are no records detailing the information communicated to the PW Director by the Operations Manager.
- Item 5.6. The EMS team should discuss when and how to incorporate Biosolids EMS considerations in the wastewater treatment plant improvements. There should be some guidelines on when the EMS manual revision should start and at what point in the project the new EMS manual will be in effect.
- Item 7.3. With the departure of our former Biosolids EMS Coordinator, the responsibilities for the program have been divided. Currently the ES Supervisor is responsible for the biosolids program and the EMS Coordinator's duties have been assigned to someone else. The goal is to have those duties combined again in one position.
- Item 11.1. Element 11 of the EMS manual is worded in such a way that it implies there are three plans related to spills and slug discharges when there is really only one plan. Also, the operators were not confident in their role during cleaning of biosolids spilled during loading.
- Item 11.2. The EMS team needs to complete a desktop exercise with the Fire Department regarding spill procedures during hauling.
- Item 12.2. Both WWTP staff and ES staff struggled to describe how they would know a written procedure is the most recent version. Staff needs more training in this area.
- Item 15.1. Staff had no idea the Biosolids Management Program Performance Report was written or where to find one.

CONCLUSIONS

The City's biosolids EMS program has made great strides and is on the verge of being ready for certification by the NBP. The next step is to develop a plan for correcting the nonconformances identified above. Once these issues have been adequately addressed, the City will verify those results and continue to prepare for the Third Party Audit.