

NATIONAL BIOSOLIDS PARTNERSHIP AUDIT REPORT

**City of Albany Wastewater Treatment Plant
Albany, Oregon**

Audit conducted by

Curtis Barton, Clackamas County WES (Lead Auditor)

Chris Bailey, City of Albany

References:

National Biosolids Partnership (NBP) EMS Elements – May 1, 2002
NBP Third Party Verification Auditor Guidance – November 2001
(Latest Revision August 2007)
NBP Code of Good Practice
City of Albany Environmental Management System for Biosolids
Environmental Management System Manual
(Latest Revisions – April 2007)

INTRODUCTION

The purpose of the Biosolids Environmental Management System (EMS) interim audits is to verify through regular reviews the system's health and effectiveness between verification audits. The on-site interim audits provide independent reviews, and support credibility between re-verification audits. The goal of the interim audit is to collect and evaluate objective evidence related to a portion of the EMS such that over the course of the four interim audits, all 17 elements are covered. The audits determine whether the City of Albany EMS for Biosolids is functioning as intended, that practices and procedures are conducted as documented, and that the EMS as implemented conforms to the NBP's Code of Good Practice and EMS program objectives.

RECOMMENDATION

The results of the year two interim audit of the City of Albany EMS for Biosolids are positive and it is the decision of the auditors that the Albany Wastewater Treatment Plant EMS maintains its "Certification" status.

AUDIT SCOPE

The City of Albany conducted an internal interim audit of the City's EMS for Biosolids from May 6, 2007 through May 7, 2007. The on-site interim audit team consisted of Curtis Barton (Clackamas County Water Environment Services), Lead Auditor, and Chris Bailey, Auditor.

The scope of the year two interim audit included review of the following core element requirements:

- EMS outcomes (environmental performance, regulatory compliance, interested party relations, and quality practices)
- The organization's progress toward goals and objectives (Element 5)
- Actions taken to correct minor nonconformances (Element 14)
- Management review process (Element 17)
- Corrective and preventive action requests and responses (Element 14)

In addition the audit included:

- Element 7 – Roles and Responsibilities
- Element 8 – Training
- Element 11 – Emergency Preparedness and Response
- Element 12 – Documentation, Document Control and Record Keeping
- Element 2 – Biosolids Management Policy (partial)

The physical biosolids related facilities included in the audit and visited during the on-site audit were the wastewater treatment plant; the belt filter press facility; the solids storage bins; and the biosolids truck and loading operations.

The following individuals were interviewed as part of the interim audit process:

- Chris Bailey, Water Quality Supervisor (EMS Coordinator)
- Herb Hoffer, Environmental Services Manager
- Tom TenPas, Environmental Services Technician II (Biosolids)
- Lenée Casteel, Lead Wastewater Treatment Operator

INTERIM AUDIT FINDINGS

The interim audit found no major nonconformances, two minor nonconformances, nine opportunities for improvement and seven positive commendations.

The following is a review of the positive observations made during the interim audit. Minor nonconformances and opportunities for improvement follow and are listed by item number in the sequence of the NBP standard element auditor guidance.

Positive Observations

- The Corrective Action Forms completed for each nonconformance are maintained in hardcopy complete with a signature to verify each corrective action has been completed and properly documented.
- Table 12.1 includes retention requirements and archive copies of revised procedures are marked with a stamp to note archive date and required retention time.
- Revisions to the EMS Manual are summarized in a Document Control table located at the beginning of the manual. This table quickly summarizes major changes to the manual at each revision for easy reference.
- The management review process is particularly well planned and executed and ensures open communication with and support from Public Works management.
- The EMS wallet card is an excellent tool for general EMS awareness and training for City staff.
- The City continues its strong outreach and public participation program despite limited input from the public regarding biosolids. Examples of this program include newsletters for both the biosolids and pretreatment programs, and inclusion of articles on the biosolids program in the City's quarterly newsletter to all citizens.
- Improving the quality of the biosolids product is a clear goal with staff actively seeking new ideas for moving from a Class B to a Class A product.

Minor Nonconformances

- Item 7.1 – The annual review specified in Element 7, paragraphs 2 and 4 did not take place.
- Item 11.2 – While the Contingency Plan was reviewed within the past year, there is no documentation of the review or any revisions.

Opportunities for Improvement

- Element 2 – There is no objective documentation of City Council support of the biosolids EMS program and commitment to the NBP Code of Good Practices.
- Element 5 – While city and departmental strategic plans exist, they were not considered in the development of biosolids EMS goals and objectives.
- Element 7 – The organization charts in the biosolids EMS manual should be updated routinely as staff changes take place.
- Element 8 – The process for entering biosolids EMS training documentation into the operations training database is not clear or consistently followed.
- Element 11 – Consider adding text to SOP BS-007 (Spills of Digested Biosolids) that describes what emergency equipment is on the hauling truck and what should be requested in case of a spill.
- Element 12 – The location of documents in Table 12.1 is unclear. Some are listed in Table 3.1, others are not. Consider adding to Table 12.1 or using text to describe the locations of these documents.
- Element 12 – It is unclear if Table 12.1 is intended to be a complete list of all documents related to the EMS or a partial list.
- Element 12 – State and federal requirements for document retention can differ. Consider reviewing both sets of requirements and updating Table 12.1 as necessary.
- Element 14 – There are no clear criteria for determining what triggers the need for an informal Corrective Action, therefore too few or too many Corrective Action Forms may be established.

CITY OF ALBANY WASTEWATER BIOSOLIDS OPERATIONS COMMENTS

The City of Albany Biosolids EMS Team believes the EMS program continues to offer the City benefits including increasingly positive relationships with state regulators and local growers. The Year Two Interim Audit provided the City with a timely check of the EMS program and added value to our biosolids management process. Conducting this Interim Audit internally saved the City considerable cost. However, to help maintain our credibility, we invited a staff member from Clackamas County's Water Environment Services (WES), also an NBP-certified agency, to help with the audit. The use of an auditor from a separate agency that also participates in the EMS program provided us with an objective evaluation and the experience clearly benefitted both Albany and Clackamas County WES. The EMS Team expects to have the nonconformances addressed within 30 days.

OUTCOMES MATTER

The City of Albany Biosolids Program established four major groups of biosolids EMS goals and objectives for 2007-08 consisting of six goals and 11 individual objectives. These goals were developed through discussions within the EMS Team and input requested from staff in the biosolids value chain. The City's Biosolids goals for its EMS were established cognizant of each of the four outcome focal points of the NBP program as identified below:

1. Environmental Performance
2. Regulatory Compliance
3. Relations with Interested Parties
4. Quality Biosolids Management Practices

While it is not a requirement to attain all objectives established, it is a critical part of the system to make progress towards the overall goals. The City's performance relative to each of the above groups is addressed below.

Environmental Performance

In the Environmental Performance area, the City established three goals with six objectives for 2007-08. The first goal was to meet or surpass regulatory requirements associated with biosolids. There were three objectives associated with this goal. The key objective related to environmental performance under this goal is to maintain biosolids 20% below the federal clean biosolids limits.

The second goal was to optimize the production of biosolids so that storage bin capacity during the wet season (1 November to 1 May) did not exceed 75% of capacity, and during the remainder of the storage season (1 May to start of application) did not exceed the additional 25% of capacity. This was to be accomplished through meeting two objectives. The first was to optimize the dewatering capability and maximize the reliability of the belt filter press operations. The dewatering target was a monthly average of 16% to 18% solids and the maintenance target was 90 percent availability of belt filter presses. The second objective was to take advantage of all opportunities to land apply. This objective included contacting at least three growers regarding the availability of fields for wet-weather or spring/fall applications.

The third goal related to environmental performance was to improve the client's understanding and management of nutrients in land application. The objectives for this goal were to provide a product value statement for the biosolids applications conducted in 2007. This report would contain the nitrogen, phosphorous and potassium content of the City's biosolids along with a dollar value for the nutrients and hauling/application.

The City made progress in these goals and objectives. The biosolids storage bins were exactly 75% full on April 30, 2007. The maximum storage level reached in 2007 was 92%, leaving 8% capacity in the bins. The operations personnel maintained 100% availability of belt filter presses throughout 2007 and the first quarter of 2008. The

biosolids manager contacted several growers and obtained state approval of three new fields that will offer increased early-season application potential.

Regulatory Compliance

In the Regulatory Compliance area, the City established one goal with three objectives to meet or surpass applicable regulatory compliance requirements associated with biosolids products. The objectives included maintaining or improving pretreatment compliance as measured by the following steps:

- Having zero industries in significant non-compliance
- Initiating and distributing a Pretreatment Newsletter to all permitted industries and at least one non-permitted industrial group
- Completing all requirements of the EPA Streamlining program for pretreatment

The second objective was to have zero notices of permit violations from DEQ related to biosolids management by implementing the following:

- Analyzing soil at sites applied on two out of three consecutive years
- Analyzing at least one biosolids sample quarterly per Best Management Practices guidelines

The final objective was to maintain metal contaminants 20% or more below the federal clean biosolids limits by implementing the following steps:

- Completing the dental BMP program including certification for the reduction of mercury and silver
- Investigating the feasibility of another source control BMP program to reduce metals discharge
- Increasing educational outreach to at least one non-permitted industrial group

The City had no industries in significant noncompliance in 2007. Staff distributed a Pretreatment Newsletter to all industrial dischargers twice in the year, including an edition targeting dentists as the non-permitted industrial group. They conducted on-site inspection of all significant industrial users (SIUs) and 30 dental offices. Personnel also participated in the Oregon Dental Association Annual Convention.

The wastewater treatment plant has zero notices of violation related to management of biosolids since 2004, and has consistently operated more than 20% below the heavy metal concentrations required in the 503 regulations. The City did receive a Warning Letter from DEQ related to biosolids management. The enforcement action was the result of application of Albany biosolids to a non-approved field. As a result, the procedures related to land application and delineation of approved fields was reviewed and revised to incorporate procedures designed to prevent recurrence.

Relations with Interested Parties

In the Relations with Interested Parties area, the City established goals and objectives to improve understanding of the value of biosolids among growers and increase the community's awareness and acceptance of quality biosolids. The first goal is to improve the grower's understanding and management of nutrients associated with land application

of biosolids, and is described above in the Environmental Performance section. The second goal was to improve outreach to increase public awareness of Albany's biosolids management program. The objectives associated with this goal included:

- Provide biosolids information from vendor booth at Linn County Fair
- Provide information from vendor booth at Willamette Valley Agriculture Expo
- Improve biosolids EMS web page.
- Add photos and slide show of biosolids operations to web page

The City attained most of its goals and objectives in this area. The biosolids manager prepared a "Farmer's Report" for each grower whose land utilized biosolids land application. The report contained vital information on nutrients, in addition to how low the metals concentrations were. The financial savings to the farmer included the dollar values of the fertilizer, labor and fuel; with a total savings for the crop year.

The biosolids web page has been updated regularly including the addition of new items such as the quarterly newsletter. City representatives attended a booth at the Linn County Fair, and at the annual Willamette Valley Ag Expo. Both booths had regular traffic and presented information on Albany's biosolids program. The City's presence at the Ag Expo resulted in the request and approval of three new sites for biosolids land application.

Quality Biosolids Management Practices

In the Quality Biosolids Management Practices area, the City established a goal of maintaining biosolids quality throughout construction of the wastewater treatment plant improvements. The objectives related to this goal included establishing and maintaining communication with the project consultants and contractors, and maintaining 100% functionality of the plant during construction.

The biosolids team has two representatives who attend all construction progress meetings and represent concerns of biosolids and EMS staff to the project managers. These relationships have helped the city define and manage potential problem areas associated with construction and operation of a new wastewater treatment plant.

CONCLUSIONS AND RECOMMENDATIONS

The results of the year two interim audit are positive. The review and approval of the corrective action plans for each of the non-conformances identified during the audit will soon be completed, and it is the recommendation of the audit team that the City of Albany Wastewater Biosolids EMS maintain its "Verification" status.

As was mentioned previously, an EMS is a continuous improvement process, and the results of this and future audits will provide value added to the system and should be viewed as an overall opportunity to improve. Every audit is a snapshot in time, and does not, or cannot, identify each and every area for improvement. And yet, while no single audit identifies all of the areas for improvement the results of each audit provide an additional incremental step in the overall system's improvement.

In future interim audits, these core processes will be analyzed:

- The organization's progress toward goals and objectives,
- EMS outcomes (environmental performance, regulatory compliance, interested party relations, and quality practices),
- Actions taken to correct minor nonconformances,
- Management review process, and
- Corrective and preventive action requests and responses;

Additionally, the following elements would be addressed during each interim audit:

Year 1 – 3, 10, 13 (external);

Year 2 – 7, 8, 11, 12 (internal);

Year 3 – 6, 9, 2, 4 (external);

Year 4 – 1, 15, 16 (internal).

Because the majority of the critical control points will be modified as a result of the current wastewater treatment plant upgrade scheduled for completion and startup in July 2009 the elements to be audited may have to be revised before the year 3 and year 4 interim audits to more clearly define the audit scope.

Attachment 1

Documents and Other Object Evidence Reviewed During the Year Two Interim Audit

Element 3. Critical Control Points

- EMS Table 3.1 Biosolids Critical Control Points - Operations

Element 5. Goals and Objectives for Continual Improvement

- EMS Element 5: Goals and Objectives for Continuous Improvement.
- Table 5.1 – Biosolids EMS Goals and Objectives
- Biosolids EMS – Goal and Objectives Action Plan Table – 2007-2008.
- Biosolids EMS – Goal and Objectives Action Plan Table – 2008-2009.
- Complete evaluation of progress on Goals and Objectives for 2007-2008.
- Assessment of outcomes in the four critical areas.
- Interviews with Chris Bailey, Tom TenPas, and Herb Hoffer

Element 7. Roles and Responsibilities

- EMS Element 7: Roles and Responsibilities
- Table 7.1 – Biosolids EMS Responsibilities
- Appendix 7-A – Public Works Organizational Charts
- Interviews with Chris Bailey, Tom TenPas, and Herb Hoffer

Element 8. Training

- EMS Element 8: Training
- City of Albany EMS wallet card
- Reviewed record of training provided to WWTP expansion general contractors and staff
- Interviews with Chris Bailey, Tom TenPas, and Herb Hoffer

Element 11. Emergency Preparedness and Response

- EMS Element 11: Emergency Preparedness and Response
- Reviewed Biosolids Contingency Plan
- Reviewed SOP BS-007 Spills of Digested Biosolids
- Interviews with Chris Bailey, Tom TenPas, and Herb Hoffer

Element 12. EMS Documentation, Document Control and Record Keeping

- EMS Element 12: EMS Documentation, Document Control and Record Keeping
- Table 12.1 – Summary of Level 1-3 EMS Documents and Records

- Reviewed SOP BS-007 Spills of Digested Biosolids for required elements
- EMS Manual Document Control Log
- Interviews with Chris Bailey, Tom TenPas, and Herb Hoffer

Element 14. Nonconformances: Preventive and Corrective Action

- EMS Element 14: Nonconformance: Preventive and Corrective Action.
- Interviews with Chris Bailey, Tom TenPas and Herb Hoffer.
- Reviewed Corrective Action Tracker and the required corrective action forms from the Year One interim audit.
- Reviewed corrective action forms for informal corrective actions
- Interviews with Chris Bailey, Tom TenPas, and Herb Hoffer

Element 17. Periodic Management Review of Performance

- EMS Element 17: Periodic Management Review of Performance.
- Reviewed documentation of Management Review meeting of January 22, 2008 held with Diane Taniguchi-Dennis, Mike Wolski, and Chris Bailey
- Reviewed outcomes and action items contained in memo "Biosolids EMS Management Review Results" dated January 23, 2006
- Interviews with Chris Bailey, Tom TenPas, and Herb Hoffer

Attachment 2

National Biosolids Partnership Appeals Process

Biosolids organizations that participate in the National Biosolids Partnership (NBP) Environmental Management System (EMS) Program are required to undergo an EMS verification audit by an independent, third party auditor assigned by the NBP and yearly interim audits. The purpose of the EMS audit is to determine whether or not the organization's EMS conforms with -- that is, meets the requirements of -- the NBP program, as defined in the EMS Elements¹. The spirit of these requirements includes a well-documented program and meaningful opportunities for interested party involvement.

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 audit company's official verification decision or interim audit decision.

To submit an appeal before the Appeals Board, the petitioner must set forth the specific EMS element(s) and requirements that is believed to have not been evaluated and/or implemented consistent with NBP requirements as reflected in the EMS Elements, along with the objective evidence to support that claim. For example, a petitioner may believe that a major nonconformance exists but was not found by the auditor. In this case, the petitioner would need to identify in the petition the specific EMS element believed to be out of conformance and why.

To submit an appeal, petitioners must fill out and submit the standardized appeals petition form that is available on the NBP website at <http://www.biosolids.org>. A formal appeal must be submitted within 30 days of the verification decision or interim audit decision by the audit company.

The Board's Administrative Officer receives all appeals petitions on behalf of the Board and conducts a basic completeness check. Upon completion of this check, the petition is either forwarded to Appeals Board members or back to the petitioner with incomplete areas documented. Petitions should be sent via certified, return receipt requested mail to:

The NBP EMS Appeals Board, Attention: Board Administrative Officer, c/o
Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314

¹ The *EMS Elements* and other program materials are available on the NBP website at <http://www.biosolids.org>.

The Appeals Board will examine the facts, interview parties involved, deliberate the case, and then make a determination as to whether a major nonconformance does or does not exist. Appeals cases vary in complexity. As a result, the time required for the Board to evaluate a case and make a decision might vary. However, the overall Board target for processing an appeal is approximately four months.