



National Biosolids Partnership
Environmental Management System (EMS)
Internal Audit Report
City of Fort Worth Water Department
Village Creek Water Reclamation Facility
Fort Worth, Texas

Audit Performed By:

Steven L. Nutter

Audit Dates: August 30th-31st, 2018

Report Date: September 26th, 2018



References

City of Fort Worth EMS for Biosolids
NBP - 3rd Party Auditor Guidance (August 2011)
NBP – Guidance for Interim Audits (August 2004)

1.0 - INTRODUCTION

The Fort Worth Water Department, in conjunction with Renda Environmental Inc. (Contractor), has developed and implemented an environmental management system (EMS) for its Biosolids Program. The EMS helps the Village Creek Water Reclamation Facility to manage all aspects of its Biosolids Program, including solids treatment, dewatering, transportation and beneficial land application. The EMS was first certified on July 20, 2005 by the National Biosolids Partnership (NBP). Fort Worth was one of the original programs to volunteer to become a NBP Demonstration Agency, becoming the seventh agency in the country and the first in Texas to receive EMS certification from NBP.

A properly implemented EMS assists the Biosolids Program with the following:

- Identifying the overall goals and objectives of the Biosolids Program.
- Creating a series of management practices to meet the goals and objectives.
- Managing biosolids and monitoring and measuring the effectiveness of the program.
- Taking corrective and preventative measures if the management practices are not operating correctly.
- Conducting audits of the Biosolids EMS Program.
- Requiring management involvement to make changes to the program as needed.

The City of Fort Worth conducts annual internal audits of its Biosolids EMS Program. The internal audits are structured to work in tandem with third-party interim and verification audits. The City believes that the internal audits provide opportunities to continually improve the EMS program and prepare staff for third-party audits.

In accordance with Element 16 of the Biosolids EMS Program, an internal audit was conducted on August 30th-31st, 2018. The audit team consisted of the following individuals from the Fort Worth Water Department:

- Steven L. Nutter, REM, CEA (Lead Auditor) - Over 17 years of experience conducting environmental audits & inspections with the City of Fort Worth Water Department and the Texas Commission on Environmental Quality (TCEQ).

2.0 - SCOPE AND OBJECTIVES

EMS Element 16 details procedures for conducting internal audits of the Fort Worth Biosolids Program. There are two types of internal audits:

- Interim Audits – During any given reporting year if a third-party auditor is not utilized then the City shall conduct interim audits that cover the biosolids EMS management activities performed by the Contractor and the City. Interim audits are similar in scope and procedure to the National Biosolids Partnership (NBP) interim third-party audits.
- Pre-Interim Audits - The City conducts pre-interim audits prior to third-party audits. Pre-interim audits are more general in nature and focus on items such as environmental performance and goals & objectives.

This year the internal audit scope was designed to follow the pre-interim audit procedures. This included the review of the following items:

- Overall Environmental Performance
- Compliance Status
- EMS Goals & Objectives
- EMS Management Review Meetings
- Annual EMS Performance Report
- Corrective Action Notices (CAN)

The objective of the audit was to determine whether or not the EMS is effective in helping the Water Department to manage its biosolids processes, as well as assisting the Biosolids Program in preparing for the third party verification audit.

3.0 - METHODOLOGY

The audit followed the guidelines provided in EMS Element 16 of the Fort Worth Biosolids Program. Each of the required components was reviewed to determine overall program effectiveness. Specifically, the program was evaluated using the following methods:

- Document Review
- Interviews with City and Contractor Personnel

4.0 - OVERALL EVALUATION

The Fort Worth Biosolids Program is preparing to enter an extended transitional period where its current existing processes will undergo fundamental changes. For over two decades Fort Worth has produced lime stabilized biosolids that meet the Environmental Protection Agency's (EPA) definition of exceptional quality (EQ) Class A biosolids. While the program has been and continues to be successful over this time period, it must also be noted that during the last 6 years new challenges have arisen which make land application of the lime stabilized material problematic. Odors have become an increasingly difficult issue to deal with, resulting in longer hauling distances to find remotely located fields. This is in addition to the increased complexity and costs of odor treatment processes which are necessary to make land application of limed biosolids feasible. Regulatory oversight has also increased, including the modification of Fort Worth's TPDES permit to include additional solids handling & odor management requirements.

To meet these challenges Fort Worth is installing new infrastructure to help improve biosolids management activities. A new five (5) million gallon liquid solids holding tank is scheduled to start construction later this year which will provide process redundancy and improve wet weather performance. A new ferric chloride dosing station will be constructed as part of this project to help improve biosolids dewatering and odor performance. And the Biosolids Master Plan is nearing completion, which will provide a roadmap for process upgrades and needed infrastructure over the next 2 decades.

The Biosolids EMS has been instrumental in identifying and addressing the challenges identified above. The "plan-do-check-act cycle," which is a core element of any EMS, is a valuable tool that helps Fort Worth to address problems when they arise and also minimize chances of future reoccurrences. The continual improvement philosophy of the NBP is seen throughout the biosolids program. However, there are opportunities for improvement that both the City and Contractor have acknowledged and are committed to addressing. This is further testimony to the continual improvement philosophy of Fort Worth's Biosolids EMS Program.

5.0 - AUDIT PARTICIPANTS

The following City employees and Contractor personnel were contacted during the course of the audit:

Ben Davis, Biosolids Program Manager (Contractor): (817) 571-9391
Magan Lersch, Biosolids EMS Coordinator: (817) 392-4979
Glory Walker, Sr. Environmental Specialist: (817) 392-4936

6.0 - PRE-INTERIM AUDIT FINDINGS

The following summary addresses positive observations, nonconformances and recommendations noted by the auditor during the pre-interim audit.

6.1 - Positive Observations:

The following observations were noted:

- City and Contractor personnel are well trained and understand their roles and responsibilities.
- Contractor utilizes numerous strategies to manage odors at the land application sites.
- The City is dedicating considerable resources to help improve odor performance and dewatering activities.
- The continual improvement philosophy is evident throughout the organization.

6.2 - Minor Program Nonconformances

Element 5 – Goals & Objectives

Item 5.1: Establish and periodically review measurable biosolids program goals and objectives for biosolids management activities.

Finding: The chlorine dioxide system has experienced unscheduled shutdowns when feed chemicals are not available. This is primarily due to the fact that the existing treatment system does not have enough storage capacity for Purate. This issue was identified by staff as a deficiency and is in the process of being corrected with the addition of a new Purate storage tank. However a goal & objective using SMART criteria was never put in place.

6.3 - Recommendations

1. No recommended actions.

7.0 – PRE-INTERIM AUDIT REQUIRED ELEMENTS

7.1 - Environmental Performance

Required TPDES Monitoring. During the 2017-2018 reporting period the Fort Worth Biosolids Program was compliant with the following TPDES monitoring requirements:

- Helminth Ova
- Enteric Virus
- Metals
- Toxicity Characteristic Leaching Procedure (TCLP)
- Polychlorinated Biphenyl (PCB)
- Odor Log Monitoring Requirements
- Vector Attraction Reduction Alternative #1 Requirements

A fecal sample collected on October 9th, 2017 exceeded the TPDES permit limit. Upon learning of the issue the City and its Contractor promptly responded and notified TCEQ of the issue. A root cause analysis was performed and additional fecal sampling activities were performed to verify program compliance.

An excessively heavy rain event during the week of February 19th created a flooding event that washed a small amount of land applied biosolids into a pond located within the boundary of the land application site. Approximately 100 fish died as a result of low oxygen levels in the pond. It is important to note that the Contractor met all TCEQ Class AB land application setbacks and that no biosolids were washed off the property.

Odors. When chemicals are adequately dosed into the biosolids the odor performance during land application activities is quite good. However, extended wet weather events result in prolonged onsite storage of biosolids, which in turn increases the material's odor potential. Chemical treatment system limitations, especially chemical tank storage capacities, have also negatively impacted overall odor performance. During the 2017-2018 reporting period there were 44 complaints associated with odors at the land application sites.

Other Complaints. During the 2017-2018 reporting period there were seven complaints associated with land application activities that were not related to odors:

- Four Dust Complaints
- One Truck Traffic Complaint (damaged roads)
- One Complaint About Land Application During Rainstorm
- One Complaint About Land Application Near Water Source

When possible, inspections are performed at land application sites to verify complaint information and to make informed decisions on how to deal with any problems

7.2 – Compliance Status

During the reporting period the Fort Worth Biosolids Program was in compliance with regulatory requirements with the exception of the fecal issue identified in section 7.1.

7.3 – EMS Goals & Objectives

EMS Goals & Objectives have been developed and updated as required by Element 5. However please see Finding #1 in Section 6.2 above.

7.4 – EMS Management Review Meeting

The Annual EMS Management Review Meeting was held on October 5th, 2017. The meeting minutes were documented and followed the criteria outlined in Element 17.

1. Accomplishments since last review;
2. Changes to policy;
3. Goals & Objectives - Advancements towards existing goals and objectives and identifying “New” goals and objectives.
4. Internal EMS audit results;
5. External third-party Interim & verification EMS audits;
6. Legal and self-imposed regulation compliance;
7. Reports on emergencies, spills or other incidents
8. Corrective Action Notices;
9. Update to Critical Control Points;
10. External communication and public participation;
11. Other biosolids performance measures;
12. Future plans and projects;
13. Follow-Up Actions

7.5 – Annual EMS Performance Report

The Annual EMS Performance Report for the 2016-2017 reporting period was issued on October 3, 2017. The EMS Performance Report included all the required elements. The Annual Report for the 2017-2018 is currently being worked on and will be issued prior to the upcoming EMS Management Review Meeting (October 2018).

7.6 – Corrective Action Notices

Currently three corrective action notices (CANs) are still open from 2017-2018:

- CAN 2017-14
- CAN 2018-03

Staff have been working throughout the year to perform corrective actions and move closer towards closing out each of the CANs.