



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 27 – 31, 2021
Report Date: October 4, 2021



References

City of Fort Worth EMS for Biosolids
NBP – 3rd Party Auditor Guidance (August 2011)
NBP – Guidance for Interim Audits (August 2004)
NBP – Self-Assessment as an Interim Audit (July 2013)

1.0 - INTRODUCTION

The Fort Worth Water Department, in conjunction with Synagro of Texas-CDR, Inc., has continuously 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 27 – 31, 2021. The audit team consisted of the following individuals from the Fort Worth Water Department:

- Steven L. Nutter, REM, CEA (Lead Auditor) - Over 20 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 Biosolids 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 biosolids personnel

4.0 - OVERALL EVALUATION

On December 30th, 2019 an operate-design-build-operate contract (ODBO) was awarded to Synagro of Texas-CDR, Inc. to manage Fort Worth's biosolids. The agreement with Synagro (Biosolids Contractor) requires them to design and construct a rotary drum dryer facility within 30 months of the contract award date. Furthermore, on April 1st, 2020 Synagro took over operation and maintenance of the existing belt-filter press / lime stabilization process to produce TCEQ Class AB biosolids. The production of belt-pressed biosolids will continue until such time as the new dryer facility is constructed and operational. By contract Synagro is also responsible for transporting and beneficially reusing Village Creek's biosolids, and for obtaining agreements with landowners for bulk land application activities.

Design of the new Class A thermal drying facility was completed in December 2020. Construction work commenced in July of 2020 and continues at a rapid pace. At the time of this report construction activities are nearing 80% completion. The building's internal structure and outer shell is complete. Most major systems and subsystems are in place. Work continues on electrical, HVAC, storage silos and fire sprinklers systems. Design work on the natural gas pipeline to provide fuel for the dryer is complete and should be installed before the end of the calendar year (2021).

The Biosolids Contractor is currently working to install and implement a computerized maintenance management system (Maximo based CMMS) for the existing belt-press dewatering operations as well as the new thermal dryer facility. Assets for the existing infrastructure have been uploaded into Maximo, and work is currently underway to enter the associated "asset properties" into the system. It is expected that the new dryer facility assets will be uploaded into Maximo by the end of the year. Biosolids Contractor employees have been trained on the new CMMS system.

The ongoing COVID-19 pandemic has presented a number of challenges to City and Biosolids Contractor staff. The top priority has been to ensure a safe working environment for all employees. Social distancing, face masks, and vaccinations have been the primary means for combating the spread of COVID-19. Unfortunately the pandemic has had an impact on biosolids activities, especially public outreach efforts. Tours of the Village Creek Water Reclamation Facility, which is the primary method for soliciting input from the general public, were on hold due to concerns associated with COVID-19. Most public events were outright cancelled or were not attended by City staff, again due to safety concerns associated with the pandemic. But some outreach efforts continue - the biosolids program has continued to solicit input through QR codes on signage at land application sites, as well as distributing public outreach materials via InfoTubes. Phone numbers for City and Contractor personnel are provided on land application signage so that the general public can submit comments or complaints.

The Biosolids EMS continues to be an important tool for identifying and addressing program deficiencies. The continual improvement philosophy of the NBP is seen throughout the biosolids program, and 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 Biosolids Contractor personnel were contacted during the course of the audit:

Karen Probert, Sr. Environmental Specialist: (817) 392-4979
Glory Walker, Sr. Environmental Specialist: (817) 392-4936
Eduardo Prospero, Program Manager (Biosolids Contractor)

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:

- The Biosolids Program has made significant progress toward achieving its EMS goals and objectives.
- City and Biosolids Contractor staff are well trained and understand their roles and responsibilities.
- Total available land application acreage has grown from 18,000 acres in 2020 to over 26,000 acres in 2021.
- City and Biosolids Contractor staff continue to utilize corrective action notices (CANs) to address any program nonconformances.
- The continual improvement philosophy is evident throughout the Biosolids Program.

6.2 - Program Nonconformances

No nonconformances found during the audit.

6.3 - Recommendations

1. During the pandemic the biosolids program continues to utilize QR codes as a tool for soliciting input from the general public. During the past year QR codes have been added to outreach materials that are distributed via InfoTubes at the land application sites. It is recommended that the City and the Biosolids Contractor look for ways to increase input from third parties by increasing the visibility of the QR codes on land application signage.
2. Progress continues on updating Village Creek's standard operating procedures for operations, biosolids and safety. It is recommended that senior management ensure

that Village Creek staff dedicate adequate time for reviewing, updating and finalizing these documents.

3. Senior management has put a renewed emphasis on emergency planning and preparation. This includes performing a risk and resilience assessment for both Village Creek (including biosolids) and the collection system. Furthermore emergency SOPs are being reviewed and updated, including those associated with the risk management plan (RMP). It is recommended that senior management ensure that Village Creek staff dedicate adequate time for participating in these efforts as well as performing emergency drills.

7.0 – PRE-INTERIM AUDIT REQUIRED ELEMENTS

7.1 - Environmental Performance

Required TPDES Monitoring. During the 2019-2020 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)

Fecal Coliform – On August 06, 2020 a biosolids sample exceeded the permitted limit of 1000 MPN/gram. A corrective action notice (CAN 2020-04) was utilized to address the nonconformance.

Odor Complaints. When the biosolids are adequately dosed with ferric chloride and chlorine dioxide the land application odor performance is usually quite good, provided the biosolids are not stockpiled for extended periods due to wet weather events. During the 2020-2021 reporting period there were a total of 13 odor complaints, which is slightly above last year's total (11).

Other Complaints. During the 2020-2021 reporting period the City received complaints associated with the following program areas:

- Three complaints expressing concerns with potential ground water contamination.
- One complaint associated with stormwater runoff from fields.
- One complaint claiming health effects associated with odors from land application activities.

City personnel perform inspections at land application sites to verify complaint information and to help the Biosolids Contractor make informed decisions on how to deal with any issues

or problems. The Biosolids Contractor is responsible for contacting complainants directly to discuss problems and help implement corrective actions (if needed and feasible).

7.2 – Compliance Status

Fecal Coliform. On August 06, 2020 a biosolids sample exceeded the permitted limit of 1000 MPN/gram. A corrective action notice (CAN 2020-04) was utilized to address the nonconformance.

Odor Issues. On April 15, 2019 the City and its previous Biosolids Contractor received three notice of enforcement letters from TCEQ. These enforcement actions referenced “nuisance odor conditions” at land application sites in Johnson and Hood Counties during the winter and spring of 2018-2019. However, during the 2020-2021 reporting period TCEQ dropped the enforcement action against the City.

7.3 – EMS Goals & Objectives

The EMS Goals & Objectives have been developed and updated as required by Element 5

7.4 – EMS Management Review Meeting

The Annual EMS Management Review Meeting was held on October 9th, 2020. The meeting minutes were documented and it 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. Follow-Up Actions

7.5 – Annual EMS Performance Report

The Annual EMS Performance Report for the 2019-2020 reporting period was issued on September 30th, 2020. The EMS Performance Report included all the required elements.

7.6 – Status of Corrective Action Notices (CANs)

At the end of the 2020-2021 reporting period there were two open CANs:

- CAN 2019-04: Review and evaluation of the effectiveness of emergency preparedness & response procedures for the biosolids value chain including communication systems. The Village Creek Water Reclamation Facility is currently performing a comprehensive overhaul of its emergency preparedness and response activities. This includes a risk and resilience assessment of wastewater collection and treatment. A table has been developed that summarizes all of the ongoing activities associated with emergency preparedness. This table is attached to CAN 2019-04.
- CAN 2020-06: Establish and maintain document control procedures and practices to ensure that its biosolids management program documentation and documents are kept up to date through periodic reviews and revisions. SOPs for operations, biosolids and safety are currently being reviewed and revised as needed. The SOPs for operations and biosolids should be updated by November 2021. The safety SOPs are scheduled to be revised by spring of 2022.