

**NATIONAL BIOSOLIDS PARTNERSHIP  
INTERIM AUDIT REPORT**

**Village Creek Water Reclamation Facility  
Fort Worth, Texas**

**Audit conducted by**

**NSF-International Strategic Registrations**

**William R. Hancuff, Lead Auditor**

**References:**

**National Biosolids Partnership (NBP) – *EMS Elements***  
**NBP – *Third Party Verification Auditor Guidance – August 2011***  
**NBP – *Code of Good Practice***  
**Village Creek Water Reclamation Facility**  
***Environmental Management System for Biosolids Manual***  
***(Latest Revisions – 14 October 2020)***

Draft Report – October 25, 2020

## **INTRODUCTION**

The purpose of the Biosolids Management Program (BMP) interim audits is to verify through regular reviews the system's health and effectiveness between verification audits. The third party on-site interim audits provide independent reviews and support credibility between re-verification audits. The goal of the third party interim audit is to verify continual improvement of the Village Creek Water Reclamation Facility (VCWRF) Environmental Management System (EMS) for Biosolids, and collect and evaluate objective evidence related to a portion of the BMP such that over the course of the four interim audits conducted between verification audits all 17 elements are covered. The audits determine whether the VCWRF's EMS 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 BMP objectives.

## **RECOMMENDATION**

The results of the Village Creek Water Reclamation Facility's interim audit are positive and it is the recommendation of NSF that the VCWRF's BMP maintain its Platinum Plus Level Recognition Certification status.

## **AUDIT SCOPE**

The NSF-ISR conducted a third party interim audit of the VCWRF's EMS for Biosolids from October 20 through October 22, 2020. The on-site interim audit team consisted of Dr. William R. Hancuff, Lead Auditor.

The overarching scope included review of the following activities related to the identified core element requirements:

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

Because other system elements interact with the above specific requirements the interim audit also included partial auditing of activities found in elements 1, 2, 4, 6, 9, 15, and 16.

Since the NBP allows that any individual interim audit cover a portion of the BMP, but requires that over the course of the four interim audits conducted between verification and re-verification audits the entire BMP (i.e. all 17 elements) must be covered, the following elements were audited in their entirety as part of this third interim audit:

- Element 2 – Biosolid Policy
- Element 4 – Legal and Other Requirements
- Element 7 – Roles & Responsibilities
- Element 11 – Emergency Preparedness and Response

Auditing these elements involved document review, interviews, and activity evaluations.

The scope of the Third Party interim audit encompassed the entire biosolids value chain (pretreatment, collection and treatment, through final end use) with special attention on those practices and management activities that directly support biosolids-related operations, processes, and activities within the biosolids value chain.

The physical biosolids facilities reviewed during the interim audit included the VCWRF administrative offices, overflow storage ponds, primary settling tanks, aeration tanks, secondary clarifiers, anaerobic digesters, new biosolids holding tanks, solids dewatering belt presses, mobile centrifuges, cationic polymer feed system, emulsion polymer storage tanks, ferric chloride storage tanks, lime silos, lime mixing augers, lime treated biosolids collection pads, truck scales, chlorine dioxide solids treatment, on-site biosolids storage area, biosolids truck loading, truck transportation route, staging at land application site, and biosolids land application site TX-HI-20, Field 2 in Hill County.

The following individuals were part of the interim audit process:

- Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Steven Nutter – Biosolids Manager/EMS Manager, VCWRF
- Karen Probert – Senior Environmental Specialist, VCWRF
- Glory Walker - Senior Environmental Specialist, VCWRF
- Russel Redder – Senior Professional Engineer, VCWRF
- Migdalia Jackson – Environmental Specialist, VCWRF
- Larry Holloway – Senior Environmental Specialist, VCWRF
- Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Raymond Walker – Mechanical Operator, Synagro (contractor)
- Gabriel – Operator, Synagro (contractor)
- Tim Crosby – Operator, Synagro (contractor)
- Greg Roque – Technical Services Specialist – Synagro (contractor)
- William Brown - Technical Services Specialist – Synagro (contractor)
- Mark Tilley – Environmental Engineer Land Application – Hydro ag (contractor)
- Eric Sanchez Biosolids Land Application Field Manager – Hydro ag (contractor)
- Israel - truck driver, G.I.C. Hauling (contractor)
- Rick Bailey – Johnson County Commissioner.
- Jaret Wessel – Air Section Manager, Texas Commission on Environmental Quality, Region IV Office - Dallas/Ft. Worth

## **INTERIM AUDIT FINDINGS**

The interim audit found no major non-conformances, 1 minor non-conformance, 7 opportunities for improvement and 1 positive commendation.

The following is a review of the positive observation made during the interim audit followed by the minor non-conformance and opportunities for improvement. The later are listed below in accordance with the corresponding numbers associated with the minimum conformance requirements contained in the Third Party Verification Auditor Guidance document.

### **Positive Observation**

- The communications specialist in close coordination with the biosolids management program has developed an exemplary Biosolids Communications Plan for the Ft. Worth Water Department. The plan makes use of the traditional methods of communication and outreach as well extensive use of social media, such as Facebook, Twitter and Instagram. The communication program also ensures that critical messages and information are presented in Spanish as well as English.

### **Minor Nonconformance**

- Requirement 11.2 – The standard requires the review and evaluation of the effectiveness of emergency preparedness and response procedures, including communications systems, with revisions as necessary, for example table top exercises plus spill drills. VCWWTP prepared Standard Operating Procedure PLNT 07.001 Liquid Sludge Spill Response, but has not conducted any table top exercises plus spill drills to evaluate the effectiveness of the procedures. This is a carryover finding from the 2019 interim audit and the 2020 internal audit. A corrective action has been prepared with a schedule developed to address this shortcoming.

### **Opportunities for Improvement**

- Element 4 – Be aware that the Texas Commission on Environmental Quality, air quality control regulators are becoming increasingly concerned with offensive odor regeneration or emergence after land application of biosolids. This is not only attributable to rewetting of the biosolids in the field, but also changes associated with the use of different polymers.
- Requirement 5.1 – The completion of a long standing EMS goal and objective, regarding public concerns related to biosolids, is being hampered by the lack of

action by the communications department. The action item required to accomplish this goal is production of an educational video using an interview with a specific farmer on the benefits of biosolids for improved crop production. This is a carryover observation from 2019 that has also been hampered by COVID – 19 and the change in the City’s land application contractor.

- Requirement 5.1 – Consider developing a goal and objective for controlling the disposal of “flushables” to the collection system. These are known to cause excessive maintenance issues associated with wastewater lift stations as well as significant interference with efficient digester operations.
- Requirement 5.1 – Consider developing and maintaining a List or Table of potential future goals and objectives.
- Requirement 7.1 – Some parts of the Ft. Worth Biosolids EMS – Element 7.0 procedure are not current, for example the roles and responsibilities of the contractors and the current contract number.
- Requirement 8.4 – Ensure that all subcontractors are provided an update or refresher training on the City’s biosolids management policy as well as all appropriate biosolids management activities.

## **VILLAGE CREEK WATER RECLAMATION FACILITY COMMENTS**

Fort Worth and its contractor, Synagro of Texas-CDR, Inc., are fully committed to our third party certified environmental management system. The continual improvement philosophy of the National Biosolids Partnership is a core component of our program. The issues found during this audit will provide an opportunity to improve our biosolids program both now and in the future.

## **OUTCOMES MATTER**

The Ft. Worth EMS Management Team continued to work on its goals and objectives program in 2020. The Biosolids Manager/EMS manager and the Management Team established 8 goals and objectives, which for the most part were developed using the Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria. Additionally, the EMS management team used each of the four outcome areas of the NBP program as identified below in development of its goals:

- Environmental Performance,
- Regulatory Compliance,
- Relations with Interested Parties, and
- Quality Biosolids Management Practices

The team continued to improve its use of SMART criteria in establishing goals and objectives, and in some cases considered identifying cost savings as an additional measure of improvement.

While it is not a requirement to attain all goals and objectives established, a critical part of the system is to make progress towards accomplishing the overall goals. Some goals were completed and others evolved into additional action items. The City of Fort Worth's performance relative to each of its 2020 goals is addressed below and the outcome areas affected by the goal are addressed at the end of each discussion.

**This goal is to improve sludge thickening to accomplish the objective of increasing the combined feed sludge to the blend tank from the gravity belt thickeners and rotary drum thickener to a monthly average of 5%.**

This objective was established in late 2015 when a consultant was hired. The first step in the action plan was to evaluate new thickening technologies that would replace the dissolved air floatation thickening technology. A consultant was hired in June 2015 and after an unsuccessful pilot project was completed in December 2016 it was determined to improve the gravity belt thickeners and replace the gravity thickeners. By September 2017 the conceptual design was complete and the schedule established to finalize the design and begin construction by March 2019. Due to complications and delays in the conceptual design phase the consultant moved the delivery date of the preliminary engineering report to the end of June 2018 and then shift the beginning of construction to November 30, 2019. Additional adjustments resulted in the final design of an additional gravity belt thickener and a rotary belt thickener design that was completed at the end of January 2020 with construction commencing on 1 November 2020 and completion of construction schedule for December 2022 and one year evaluation period complete by December 2023. Currently the blend tank feed to the digesters is between 3% and 4%.

Outcome Areas: Environmental Performance and Quality Biosolids Management Practices.

**Grit Removal Improvement – Reduce the number of work hours attributable to unplanned corrective grit related repairs by 25%.**

The original target of this goal was to reduce work orders associated with grit caused impacts by 50%. It was subsequently refined to reduce work hours as opposed to reducing the number of work orders generated.

The action to be taken to achieve this goal and objective is the design and construction of a new grit removal system that should remove 95% of the grit in the range of 105 microns and greater.

An annual average work hours baseline will be established using Maximo for a period beginning in January 2020 and running through commencement of operation of the new grit chambers. Construction of the new facilities began 1 June 2020 and completion of

construction is scheduled for 1 March 2023. Two years of data will be collected to determine the overall improvement in annual average work hours attributable to grit related repairs. How work orders that are directly related or partially related to grit has not been clarified.

Outcome Areas: Environmental Performance, Regulatory Compliance, Relations with Interested Parties, and Quality Biosolids Management Practices.

**Increase Percent Solids Of Biosolids (Prior To Lime Addition) by 7%, such that the percent solids concentration does not drop below 22% on a daily average.**

This goal has continued to become more aggressive since its inception in 2014. Clarification of the measurability of this goal was developed in 2018. Consideration was given to establishing a goal of 18% as a monthly average, and a goal of not operating below 17.25% during any daily shift.

The goal was originally established in April 2014, and the action plan to improve the concentration of biosolids prior to lime addition required the installation of a new belt press, resulting in a total of 6. In addition to the press a new chemical feed system was required to keep up with the polymer and lime demand at all times. The new belt press, polymer and lime systems were installed by September 2016 and in March 2017 operational performance testing revealed new challenges such as the new belt press tracking and servo motors and drives, and the automated polymer feed system. Optimization of process operations have demonstrated that the percent solids should be able to consistently meet a goal of 18% and a daily shift goal of not less than 17.25%.

Additional action plan activities related to rehabilitation of belt presses have further improved this goal. The refurbishment of the first two belt presses was completed at the end of January 2020. The refurbishment of the 3rd belt press was completed in May of 2020. Refurbishment work on the 4th belt press is scheduled to be completed by the first quarter of 2021. An additional action item of employing mobile centrifuges was added in September 2020 to improve dewatering while awaiting completion of refurbishment of the belt filters. Since the centrifuges produce solids concentrations of between 22 and 25%, the goal is anticipated to be consistently attained.

Outcome Areas: Environmental Performance, Regulatory Compliance, and Quality Biosolids Management Practices.

**Increase Biosolids Processing and Storage Capacity from 1.3 MG to 6.3 MG**

This goal was established in May 2015 and consisted of design and construction of new dewatering system (centrifuges, belt presses, screw presses, or other dewatering processes) for the digested biosolids. In addition, one of the key components of this concept evolved into a new goal and objective of increasing the biosolids storage facilities by 100%, which was later redefined to increase the storage capacity from 1.3 MG (two tanks with 500,000 gallons and 800,000 gallons) to 6.3 MG by adding a new 5

MG storage tank. The design of this storage tank was completed and the project was awarded in September 2018. The bulk of the construction work on the tank was completed by July of 2020. Currently only punchlist items remain, including additional work on the electrical infrastructure, the ferric chloride dosage system and yard piping. Project is expected to be completed by December 2020. The measureable results of this goal will be an increase in reliability of the biosolids stabilization and distribution, which ultimately will reduce odors and consequential complaints. This goal was accomplished although there are still a few punchlist items that need to be addressed to have the ferric chloride system fully functional.

Outcome Areas: Environmental Performance, Regulatory Compliance, Relations with Interested Parties, and Quality Biosolids Management Practices.

**Address Four Public Concerns Regarding Biosolids (evolved from previous goals of adding three new biosolids public outreach activities and subsequent goal of identifying four public concerns regarding biosolids.)**

The earlier goal represented a major breakthrough in the requirement for proactive public participation. As a result of the effort four areas of concern were identified: 1) The City of Fort Worth biosolids webpages are out of date; 2) the EPA and TCEQ standards are not strict enough; 3) too much about biosolids are unknown, and 4) are there pharmaceuticals and personal care products (PPCPs) in biosolids? These interests were addressed in multiple ways. A Frequently Asked Questions (FAQs) brochure was developed that addressed #1 and # 3. A presentation was developed to address #2, which can be used during tour presentations and #4 was addressed in a brochure printed in 2016.

The second action plan was to improve the ability to identify concerns via FAQs placed in information tubes and attached to the site notification signs located at land application site entrances. Information tubes began being placed in March 2016. Tracking of the number and percentage of FAQ sheets has taken place. By July 2016 approximately 34% of the info sheets were taken. Since March 2016 250 FAQs were placed at 19 land application sites and of those placed 66 (26%) were taken.

The third action plan was to improve ability to identify concerns using the Water Department's social media accounts. Considerable effort was required to accomplish this objective because the water department's social media is under the control of a different division and several restrictions have been placed on what is allowable. However the Water Department's Public Relations has extended a new level of cooperation with the wastewater treatment plant making several new public outreach initiatives possible.

The fourth action plan was to improve the ability to address public concerns by updating the biosolids webpage. As was mentioned the Water Department's Public Relations has extended a new level of cooperation with the wastewater treatment plant, which includes updating information regarding biosolids.



The fifth action plan was to improve the ability to address or identify concerns via tour surveys. The results (six months of surveys from January to July 2016) were used to gauge how familiar people are with the term “biosolids,” what people’s general attitude is towards biosolids, and if their general attitude changes after seeing a presentation on wastewater treatment and biosolids. Although the action plan has been completed, the collection of tour data continues to be successful in order to develop metrics and elicit possible comments regarding biosolids.

A sixth action plan was added in 2018 to develop two educational videos related to biosolids; one has been completed but the second (one that involves an interview with a specific farmer who will explain the benefits of using biosolids in crop production) has experienced delays because of inaction on the part of the communications department and more recently COVID-19 and a change in the biosolids contractor.

A seventh action plan was added in 2020 to develop and implement public outreach activities to address public concerns on pharmaceuticals. The method selected to distribute information on the pharmaceutical take back program was through attendance at four public outreach events. This action plan was scheduled for completion by the end of December 2020 but because of COVID-19 the plan was placed on hold until conditions improved to allow large public gatherings.

Nevertheless, as a result of this goal a comprehensive Biosolids Communication Plan was developed and issued in July 2018, that includes utilizing social media more extensively, such as Facebook, Twitter and Instagram. The communication program also ensures that critical messages and information are presented in Spanish as well as English. One of the purposes of utilizing these methods is to increase the feedback from interested persons.

Outcome Areas: Relations with Interested Parties.

### **Design, Build and Operate a New Biosolids Processing Facility to Improve the Quality of Final Product Biosolids from Texas Class AB to Texas Class A.**

The first phase of this Goal and Objective was the selection of the most cost effective alternative for the production of Class A biosolids. After selecting the Rotary Drum Dryer process a design/build contract was awarded in January 2020 with a construction completion date scheduled for 31 July 2022. Construction commenced on 13 August 2020

Outcome Areas: Environmental Performance, Regulatory Compliance, Relations with Interested Parties, and Quality Biosolids Management Practices.

### **Implement An Asset Management Program including a Computerized Maintenance Management System (Maximo) for 100 % of the existing biosolids infrastructure (belt press building, storage tanks, pump station, etc.)**

This is a new goal established in 2020 and scheduled to have all existing equipment entered into Maximo by 31 December 2021 as well as having a fully functioning work order generation and tracking system implemented. Implementation will include issuance of work orders for predictive, preventive, and corrective maintenance activities.

Outcome Areas: Environmental Performance and Quality Biosolids Management Practices.

### **Update Village Creek Standard Operating Procedure**

The objective of this goal is to review and revise 100% of the Villiage Creek Wastewater Treatment Plant Standard Operating Procedures. This effort was established as a goal and objective in September 2020, even though it was identified previously as a corrective action. Because of the importance of completing this task it was elevated to the level of a goal and objective so that it would be tracked more frequently and the progress could be reported to upper management on a quarterly basis.

Outcome Areas: Quality Biosolids Management Practices.

## **CONCLUSIONS AND RECOMMENDATIONS**

The results of the interim audit were highly positive. It is therefore the recommendation of the audit team that the Village Creek Water Reclamation Facility's EMS for biosolids maintain its Platinum Plus Level Recognition Certification status.

Discussions between the VCWRF Biosolids EMS manager and the third party auditor resulted in agreement to the following proposed interim audit approach. Each interim audit will include a review of: the organization's progress toward goals and objectives; EMS outcomes (environmental performance; regulatory compliance; interested party relations; quality practices); actions taken to correct minor non-conformances; the management review process; corrective action requests and responses; and preventive actions. In addition to the above, the following elements will be audited according to the following tentative schedule:

Year 11 (completed) – Elements 3, 10, 12, 13

Year 12 (completed) – Elements 1, 8, 15, 17

Year 13 (completed) – Elements 5, 6, 9, 14, 16

Year 14 (completed) – Elements 2, 4, 7, 11

Year 15 (third party) Re-verification

The results of the current 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.

## **Attachment 1**

### **Documents and Other Object Evidence Reviewed During the Interim Audit**

#### Element 1. Documentation of EMS for Biosolids

- Biosolids Program Environmental Management System – City of Fort Worth, Water Department, Plant Operations Division – September 28, 2018.
- Biosolids EMS Manual Introduction – March 31, 2020.
- Biosolids EMS Manual Glossary – September 27, 2017.
- Biosolids EMS Manual Issue Log (Manual Revisions) – October 16, 2020.
- Biosolids EMS Manual Planning Schedule (By Calendar Year) – September 21, 2018.
- Biosolids EMS Manual Element 1.0 – Documentation of EMS for Biosolids – Rev 11 – March 31, 2020.
- Biosolids EMS Manual – Procedures for Elements 2, 3 (including Table 3.0), 10, 12 and 13.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).

#### Element 2. Biosolids Management Policy

- Biosolids EMS Manual – Element 2.0 – Biosolids Policy – Rev 08 – September 23, 2020.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).
- Website - City of Fort Worth Wastewater Biosolids EMS (<http://fortworthtexas.gov/water/biosolids/program/>) - missing biosolids info.

#### Element 3. Critical Control Points

- Biosolids EMS Manual – Element 3.0 – Critical Control Points – Rev 15 – October 13, 2020.
- Biosolids EMS Manual – Element 3.0 – Figure 3.2 VCWRF Biosolids Value Chain (Ft Worth Village Creek Wastewater Treatment Plant process flow diagram) – October 14, 2020.
- Biosolids EMS Manual Element 3.0 Table 3.1 – Critical Control Points-Master Table (Biosolids Value Chain, Critical Control Points, Roles and Responsibilities, Regulatory Documents, Standard Operating Procedures, Other Documents,

Location of SOPs, Key Operational Parameters, Monitoring Activity, Activity and Frequency and Environmental Impacts – October 14, 2020.

- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Interviews with Raymond Walker – Mechanical Operator, Synagro (contractor), Gabriel – Operator, Synagro (contractor), Tim Crosby – Operator, Synagro (contractor), Greg Roque – Technical Services Specialist – Synagro (contractor), William Brown - Technical Services Specialist – Synagro (contractor), Mark Tilley – Environmental Engineer Land Application – Hydro ag (contractor), Eric Sanchez Biosolids Land Application Field Manager – Hydro ag (contractor) and Israel - truck driver, G.I.C. Hauling (contractor)

#### Element 4. Legal and Other Requirements

- Biosolids EMS Manual – Element 4.0 – Legal and Other Requirements – Rev 13 – September 25, 2018.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Interview with Rick Bailey – Johnson County Commissioner.
- Interview with Jaret Wessel – Air Section Manager, Texas Commission on Environmental Quality, Region IV Office - Dallas/Ft. Worth.
- Table 4.1 – Regulations Applicable to the VCWRF Biosolids Value Chain (Regulations, Description, Location, Governing agency, and areas of influence within biosolids value chain) – September 25, 2018.
- Review Johnson County Resolution on Septage Sludge Waste Disposal addressed to Tarrant County and the City of Fort Worth, Texas – suspension of all biosolids application in Johnson County until COVID-19 testing complete.
- City of Fort Worth’s letter of response to Johnson county judge regarding biosolids land application in Johnson County dated 11 May 2020.

#### Element 5. Goals and Objectives for Continual Improvement

- Biosolids EMS Manual – Element 5.0 – Biosolids Goals and Objectives – Rev 16 – October 14, 2019.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Interview with Glory Walker - Senior Environmental Specialist, VCWRF

- Appendix 5a: Biosolids Goals and Objectives – EMS Element 5.0 (Currently active) – September 30, 2020.
- Detailed review of each currently active Goal and Objective in 2020.
- Ft. Worth Water Department Website (<http://fortworthtexas.gov/water/biosolids/program/>) - no biosolids info posted
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2019 - 2020.

#### Element 6. Public Participation in Planning

- Biosolids EMS Manual – Element 6.0 – Public Participation in Planning – Rev 14 – October 14 2020.
- Biosolids EMS Manual – Element 9.0 – Communication and Public Outreach – Rev 15 – October 15, 2020.
- Public Outreach Event Log – undated form.
- Public Outreach Evaluation Form – undated.
- Notification of Land Application to Local Officials form.
- VCWRF Plant Overview – process flow diagram
- “Water’s Worth It” handout.
- Biosolids Communication Plan – July 2018 - updated.
- Ft. Worth Water Department Website (<http://fortworthtexas.gov/water/biosolids/program/>) - biosolids missing.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).
- Interview with Glory Walker - Senior Environmental Specialist VCWRF.
- Ft. Worth SOP for Audit Notification of Interested Parties, Rev 00, 7/13/16.
- 2020 Biosolids Audit: Social Media Analytics Summary
- Wastewater Treatment Plant Tour followup questionnaire form.
- Summary of tour comments from TCU student tours in November 2019.
- Overview of all biosolids comments received during 2019 Villiage Creek Wastewater Reclamation Facility Tours.
- Synagro flyer made available at each land application site entitled Land Application – The Smart Way to Fertilize.

#### Element 7. Roles and Responsibilities

- Biosolids EMS Manual – Element 7.0 – Roles and Responsibilities – Rev 12 – September 27, 2018.
- Reviewed EMS Management Team Roster for 2020.
- Biosolids EMS Manual – Element 7.0 – Table 7.1: Roles and Responsibilities (Department, Roles, Responsible Person, and Responsibilities) – September 27, 2018.

- Biosolids EMS Manual – Element 7.0 – Figure 7.1 – Water Department Organizational Chart, September 27, 2018.
- Biosolids EMS Manual – Element 7.0 – Figure 7.2 – Plant Operations Organizational Chart, September 27, 2018.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).
- Interviews with Raymond Walker – Mechanical Operator, Synagro (contractor), Gabriel – Operator, Synagro (contractor), Tim Crosby – Operator, Synagro (contractor), Greg Roque – Technical Services Specialist – Synagro (contractor), William Brown - Technical Services Specialist – Synagro (contractor), Mark Tilley – Environmental Engineer Land Application – Hydro ag (contractor), Eric Sanchez Biosolids Land Application Field Manager – Hydro ag (contractor) and Israel - truck driver, G.I.C. Hauling (contractor)

#### Element 8. Training

- Biosolids EMS Manual – Element 8.0 – Training – Rev 12 – July 22, 2020.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).
- Interviews with Raymond Walker – Mechanical Operator, Synagro (contractor), Gabriel – Operator, Synagro (contractor), Tim Crosby – Operator, Synagro (contractor), Greg Roque – Technical Services Specialist – Synagro (contractor), William Brown - Technical Services Specialist – Synagro (contractor), Mark Tilley – Environmental Engineer Land Application – Hydro ag (contractor), Eric Sanchez Biosolids Land Application Field Manager – Hydro ag (contractor) and Israel - truck driver, G.I.C. Hauling (contractor).

#### Element 9. Communications

- Biosolids EMS Manual – Element 9.0 – Communication and Public Outreach – Rev 15 – October 15, 2020.
- Appendix 9A – Complaint and Informantion Requests
- Biosolids EMS Manual – Element 6.0 – Public Participation in Planning – Rev 14 – October 14 2020.
- Biosolids Communication Plan – July 2018 - updated.
- Ft. Worth Water Department Website (<http://fortworthtexas.gov/water/biosolids/program/>) – missing biosolids
- Public Outreach Event Log – undated form.
- Public Outrache Evaluation Form – undated.
- Notification of Land Application to Local Officials form.
- VCWRF Plant Overview – process flow diagram
- “Water’s Worth It” handout.

- Biosolids Complaint form.
- Biosolids Complaint Log Listing form.
- Field Observation Report form
- Odor Monitoring Field Data Sheet
- Close-Out Site Visit Form
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).
- Interview with Glory Walker - Senior Environmental Specialist VCWRF.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2019 - 2020.
- Synagro flyer made available at each land application site entitled Land Application – The Smart Way to Fertilize.

#### Element 10. Operational Control of Critical Control Points

- Biosolids EMS Manual – Element 10.0 – Operational Control of Critical Control Points – Rev 11 – September 21, 2018.
- Table 10.1 VCWRF SOP manuals by process/location.
- Biosolids EMS Manual – Element 13.0 – Monitoring and Measurement – Rev 12 – September 21, 2018.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).
- Interviews with Raymond Walker – Mechanical Operator, Synagro (contractor), Gabriel – Operator, Synagro (contractor), Tim Crosby – Operator, Synagro (contractor), Greg Roque – Technical Services Specialist – Synagro (contractor), William Brown - Technical Services Specialist – Synagro (contractor), Mark Tilley – Environmental Engineer Land Application – Hydro ag (contractor), Eric Sanchez Biosolids Land Application Field Manager – Hydro ag (contractor) and Israel - truck driver, G.I.C. Hauling (contractor).
- Field visit to land application site TX-HI-20, Field 2 in Hill County.
- SOP binders for biosolids operations at Synagro facilities.

#### Element 11. Emergency Preparedness and Response

- Biosolids EMS Manual – Element 11.0 – Emergency Preparedness and Response – Rev 11 – March 31, 2020.
- Standard Operating Procedure (SOP) PLNT 07.001 Revision 00, 28 August 2017 – Liquid Sludge Spill Response.
- Standard Operating Procedure (SOP) PLNT 07.002 Revision 00, 28 August 2017 – Liquid Sludge Spill Reporting.



- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Interviews with Eric Sanchez Biosolids Land Application Field Manager – Hydro ag (contractor) and Israel - truck driver, G.I.C. Hauling (contractor).
- Reviewed corrective action schedule for addressing repeat finding associated with lack of table top exercises and spill drills.

#### Element 12. EMS Documentation and Document Control

- Biosolids EMS Manual – Element 12.0 – EMS Documentation & Document Control – Rev 12 – March 31, 2020.
- Biosolids EMS Manual – Element 12.0/Table 12.1 – TPDES Permit Required Report Summary.
- Biosolids EMS Manual – Element 12.0/Table 12.2 – Level 4 Documentation Master List
- Biosolids EMS Manual – Element 12.0/Figure 12.1 – Pretreatment Data Management System
- Biosolids EMS Manual Issue Log – October 16, 2020. (Element Procedures change history.)
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Reviewed Biosolids EMS Manual – Element Procedures change history logs for each procedure.

#### Element 13. Monitoring and Measurement

- Biosolids EMS Manual – Element 13.0 – Monitoring and Measurement – Rev 12 – September 21, 2018.
- Biosolids EMS Manual – Element 13.0 – Appendix 13.1: Biosolids Forms (Field Observation Report, Close-Out Site Visit Form, Odor Monitoring – Field Data Sheet, Biosolids Percent Solids Data Sheet, Sludge Only Landfill (SOL) Daily Odor Monitoring Form, Biosolids Application at the SOL Checklist, and Land Application of Biosolids at the SOL – Monitoring Form) – September 21, 2018.
- Biosolids EMS Manual – Element 10.0 – Operational Control of Critical Control Points – Rev 11 – September 21, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Interviews with Raymond Walker – Mechanical Operator, Synagro (contractor), Gabriel – Operator, Synagro (contractor), Tim Crosby – Operator, Synagro (contractor), Greg Roque – Technical Services Specialist – Synagro (contractor), William Brown - Technical Services Specialist – Synagro (contractor), Mark Tilley – Environmental Engineer Land Application – Hydro ag (contractor), Eric

Sanchez Biosolids Land Application Field Manager – Hydro ag (contractor) and Israel - truck driver, G.I.C. Hauling (contractor).

- Field visit to land application site TX-HI-20, Field 2 in Hill County with staging areas and marked boundaries and buffers.

#### Element 14. Nonconformances: Preventive and Corrective Action

- Biosolids EMS Manual – Element 14.0 – Nonconformance: Preventive & Corrective Action – Rev 13 – March 31, 2020.
- Biosolids EMS Manual – Element 14.0: Corrective Action Notice (CAN) form – July 29, 2016.
- Corrective Action Notice Review form – July 29, 2016.
- Biosolids EMS Manual – Element 16.0 – Internal EMS Audit – Rev 14 – September 21, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- National Biosolids Partnership EMS Internal Audit Report – Audit Dates August 26 – September 4, 2020; Report Date: October 6, 2020.
- Corrective Action Notice (CAN) – Master List for non-conformance issues identified in 2019 and 2020.
- Spot checked CANs prepared for non-conformance issues identified in 2019 and internal audit of 2020.
- Reviewed corrective action notices (CANs) from 2019 external third party BMP audit.
- Review of new Corrective Action Plans used to hold future Goals and Objectives

#### Element 15. Periodic Biosolids Program and EMS Performance Report

- Biosolids EMS Manual – Element 15.0 – Biosolids Program & EMS Performance Report – Rev 09 – September 21, 2018.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2019 - 2020.

#### Element 16. Internal EMS Audit

- Biosolids EMS Manual – Element 16.0 – Internal EMS Audit – Rev 14 – September 21, 2018.
- Biosolids EMS Manual – Element 14.0 – Nonconformance: Preventive & Corrective Action – Rev 13 – March 31, 2020.

- Interview with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, serving as internal auditor.
- National Biosolids Partnership EMS Internal Audit Report – Audit Dates August 26 – September 4, 2020; Report Date: October 6, 2020.

#### Element 17. Periodic Management Review of Performance

- Biosolids EMS Manual – Element 17.0 – Periodic Management Review of Performance – Rev 09 – September 21, 2018.
- Annual EMS Management Review Meeting Agenda – Webex at 11:00 on 10/09/20.
- Reviewed PowerPoint slide presentation for Management Meeting.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2019 - 2020.
- Meeting Minutes – Biosoldis Environmental Management System (EMS) Annual Management Review.
- Interview with Charly Angadicheril, Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF.