

**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)***

**Final Report – November 12, 2021**

## **INTRODUCTION**

The purpose of the Biosolids Management Program (BMP) re-verification audit is to verify the Village Creek Wastewater Reclamation Plant's (VCWRP) Environmental Management System (EMS) for Biosolids conforms to BMP requirements of the National Biosolids Partnership (NBP).

The goal of the Third Party re-verification audit is to collect and evaluate objective evidence that determines whether the VCWRP biosolids EMS is functioning as intended, that practices and procedures are conducted as documented, and that the EMS as implemented conforms to the NBP's BMP Elements, the Code of Good Practice and the program goals and objectives.

## **RECOMMENDATION**

The results of the Village Creek Water Reclamation Facility's re-verification 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 re-verification audit of the VCWRF's EMS for Biosolids from October 12 through October 15, 2021. The on-site interim audit team consisted of Dr. William R. Hancuff, Lead Auditor.

In general terms, the scope of the Third Party Re-verification 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 visited during the re-verification audit included the VCWRP administrative offices, two sets of headworks, two sets of bar screens, grit chamber and classifier building, ferric chloride feed station, two sets of primary settling tanks, septic truck unloading facilities, woodchip biofilter odor scrubbers, aeration tanks, secondary clarifiers, dual media filter with traveling bridge backwash, deep media filters, anaerobic digesters, digester gas compressors for generators, biosolids holding tanks, biosolids belt presses, cationic polymer feed system, lime silos, lime mixing augers, lime treated biosolids collection pads, truck scales, chlorination/dechlorination facilities, high rate clarifiers (HRC) for storm flow treatment, wastewater outfall, and biosolids land application site in Hill County (TX-HI-20; 475 acres; John Abnery) .

The following individuals were part of the interim audit process:

Shannon Dunn, Acting 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 – Assistant Supreintende of Operations, VCWRF  
Stacy Walters – Envrnmental Program Manager, VCWRF  
Laly Joseph – Environmental Program Manager, VCWRF  
Christine Webb – Environmental Health and Safety Program Manager - VCWRF  
David Nelson – Water Quality Manager, VCWRF  
Justin Nunemaker – Planner/Scheduler-Asset Management (Maximo), Ft. Worth  
Water Department  
Prasad Vatokunnel – Asset Manager, VCWRF  
Eduardo Prospero – Biosolids Manager, Synagro (contractor)  
Mark Mendez – Assistant Project Manager, Synagro (contractor)  
Tim Cosby – Operator, Synagro (contractor)  
Greg Roque – Technical Services Specialist – Synagro (contractor)  
William Brown - Technical Services Specialist – Synagro (contractor)  
Scott Walker – Land Applicator – Hydro ag (contractor)  
Luis Gomez – owner/truck driver, G.I.C. Hauling (contractor)  
Brian Sierant – Biosolids Workleader, Texas Commission on Envirnemental Quality,  
Water Quality Division, Headquarters, Austin, TX

## **RE-VERIFICATION AUDIT FINDINGS**

The re-verification audit found no major non-conformances, 1 minor non-conformance, 5 oppourtunities for improvement and 3 positive commendations.

The following is a review of the positive observations made during the audit followed by the minor non-conformance and oppourtunities for improvement. The later two categories of findings are listed below in accordance with the corresponding numbers associated with the minimum conformance requirments contained in the Third Party Verification Auditor Guidance document.

### **Positive Observations**

- The organization has set an excellent example on how to operate efficiently and effectively under adverse conditions. It implemented management practices that allowed it to continue operating at the highest levels of performance throughout the winter storms of 2021, as well as to continue to operate all of the critical control points in the value chain through the ever-changing conditions associated with the ongoing installation of new treatment technologies and construction activities.
- Synagro’s transportation subcontractor, GIC, uses biosolids transport trucks equipped with a bottom conveyor system that ensures the most complete removal of biosolids from its trucks, along with hand shoveling material which sticks to

the sloped insides of the trucks. They have also developed and implemented exemplary field cleaning procedures to ensure that no biosolids materials are tracked onto the public roads by their trucks.

- The Village Creek has developed, maintained and implemented exemplary daily land application field inspections and odor monitoring procedures that should serve as a model for other organizations. It is the best program of its type observed among all of the NBP certified agencies.

### **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 2019 and 2020. A corrective action has been prepared and a schedule developed to address this shortcoming.

### **Opportunities for Improvement**

- Requirement 5.1 – The completion of a long standing EMS goal and objective, regarding public concerns related to biosolids, is being hampered by the impact of Covid – 19. The action item required to satisfactorily 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 and 2020.
- Requirement 5.1 – Consider developing a goal and objective for reducing the disposal of “flushables” to the collection system. These are known to cause excessive maintenance problems associated with the collection system, lift stations and digesters. Discussion with plant personnel resulted in possibly using the reduction in the number of maintenance work orders specifically attributable to blockages caused by flushable wipes, etc. as a measurable improvement.
- Requirement 6.1 – The facility has established an excellent method for communicating biosolids’ information to neighbors in the vicinity of land application sites. This method involves placing information tubes and QR codes on the required markers at field entrances. Consider posting a substantially larger image of the QR codes on the signs, and moving the stakes closer to the public road, where people can easily access them without trespassing.

- Requirement 8.1 – Consider developing a program and schedule to conduct training of all plant operational personnel on new and/or revised Standard Operational Control Procedures (SOP’s).
- Requirement 11.1 – Consider including in the Biosolids Environmental Management System Manual Element 11.0 – Emergency Preparedness & Response Procedure a form, which can be used to record biosolids release information and data that could be used to report the occurrence to the state, should it be required by the regulations.

## **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 biosolids program, and the periodic third party audits have been an important tool to help assess our program’s strengths and weaknesses. 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 2021. 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. Two previous goals and objectives were completed and a new one added during the year. One of the completed goals was to increase the percent solids of the biosolids dry cake by 7% and the second was to increase the biosolids storage capacity from 1.3 MG to 6.3 MG.

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 2021 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 – Increase the Quantity of Grit Removed by the Grit Chambers by 100%.**

The original target of this goal was to reduce work orders associated with grit caused impacts by 50%. It was subsequently refined to reduce the number of work orders generated. It was further modified to reduce the number of work hours attributable to unplanned corrective grit related repairs by 25%. The new measurability is to increase the quantity of grit being removed at the headworks, which ultimately will reduce the maintenance and replacement of all downstream equipment adversely impacted by grit.

The action to achieve this goal 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.

The quantity of grit generated is measured in weight transported to and disposed of at the landfill. Existing records for the past five years can be used as a baseline to determine the increase in quantity of grit removed once the new grit removal system commences operation.

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

**THE FOLLOWING WAS PLACED ON HOLD DUE TO COVID – 19.**

**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

experience 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 schedule 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 Area: Relations with Interested Parties.

### **Increase the Input of Public Concerns Regarding Biosolids by 20%**

Two action plans were developed to accomplish this goal. The first is to conduct an online biosolids survey. This action plan is in process of being completed through placing the survey on the City's website, and posting QR codes for the survey on signs required at each of the land application sites. This is scheduled for completion by the end of December 2021. The second action plan is to increase the number of biosolids-only tour presentations with a survey given at the beginning and end of each presentation, then using the responses to identify concerns. The latter had been partially completed but delayed because of the pandemic and prohibition of public tours. Continuation of this action plan is anticipated to be re-energized in the Spring of 2022.

Outcome Area: Relations with Interested Parties.

### **Design, Build and Operate a New Biosolids Processing Facility to Improve the Quality of Final Biosolids Product 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/bulid contract was awarded in January 2020 with a construction completion date scheduled for 31 July 2022. Construction commenced on 13 August 2020 and the completion date remains the spring or summer of 2022.

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



**Implement An Assest 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 was 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 functional work order generation and tracking sytem implemented. Implementation will include issuance of work orders for predictive, preventive, and corrective maintenance activities.

The goal was modified slightly to include development of an hierarchy system to reflect criticality of assests. This combined with new processes and equipment being brought on line have extended the time bound limit of this objective.

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. Presently hundreds of SOPs have been completed and 20 remain to be created. Although this was scheduled to be finished by July 2021 there have been delays in reviews.

Outcome Area: Quality Biosolids Management Practices.

**Digester Improvement Project**

This is a new goal and objective added in 2021 with the measurable objective of increasing the digester gas production by 15% compared to the historic baseline. The actions anticipated include upgrades to the mixing system, gas piping, replacing foam insulation on digeste domes, and addressing heat loss issues for digester #2.

Technical memoranda were completed in March 2021; design is scheduled for April 2022; construction to commence October 2022 and project completion by March 2024. Efforts are needed to improve the monitoring and measurement of the current digester gas production to ensure a valid baseline for comparison.

Outcome Area: Environmental Performance.

**CONCLUSIONS AND RECOMMENDATIONS**

The results of the re-verification audit are 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 16 (third party) – Elements 3, 10, 12, 13

Year 17 (third party) – Elements 1, 8, 15, 17

Year 18 (third party) – Elements 5, 6, 9, 14, 16

Year 19 (third party) – Elements 2, 4, 7, 11

Year 20 (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 Re-verification Audit**

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

- Biosolids EMS Manual Introduction – March 31, 2020.
- Various EMS Manual Element Procedure Change Histories.
- 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 Shannon Dunn, Acting 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/>)

#### 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 Shannon Dunn, Acting 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 David Nelson – Water Quality Manager, VCWRF; Justin Nunemaker – Planner/Scheduler-Asset Management (Maximo), Ft. Worth Water Department; and Prasad Vatokunnel – Asset Manager, VCWRF
- Interviews Greg Roque – Technical Services Specialist – Synagro (contractor); William Brown - Technical Services Specialist – Synagro (contractor); Scott Walker – Land Applicator – Hydro ag (contractor); and Luis Gomez – owner/truck driver, G.I.C. Hauling (contractor)
- Field visit to land application site TX-HI-20: field observation of biosolids unloading, application, and marked boundaries and buffers.

#### Element 4. Legal and Other Requirements

- Biosolids EMS Manual – Element 4.0 – Legal and Other Requirements – Rev 14 – October 6, 2021.
- Interview with Shannon Dunn, Acting 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 Brian Sierant – Biosolids Workleader, Texas Commission on Environmental Quality, Water Quality Division, Headquarters, Austin, TX.
- Table 4.1 – Regulations Applicable to the VCWRF Biosolids Value Chain (Regulations, Description, Location, Governing agency, and areas of influence within biosolids value chain) – October 6, 2021.

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

- Biosolids EMS Manual – Element 5.0 – Biosolids Goals and Objectives – Rev 17 – December 10, 2020.
- Miscellaneous Project List – EMS Element 5.0 – October 13, 2021.
- Interview with Shannon Dunn, Acting 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 Public Outreach Feedback Evaluation Form – December 10, 2020
- Appendix 5a: Biosolids Goals and Objectives – EMS Element 5.0 (Currently active) September 30, 2021.
- Detailed review of each currently active Goal and Objective in 2021.
- Ft. Worth Water Department Website  
(<http://fortworthtexas.gov/water/biosolids/program/>)

- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2020 – 2021; September 30, 2021.

#### Element 6. Public Participation in Planning

- Biosolids EMS Manual – Element 6.0 – Public Participation in Planning – Rev 15 – October 6, 2021.
- Biosolids EMS Manual – Element 9.0 – Communication and Public Outreach – Rev 16 – October 6, 2021.
- Public Outreach Event Log – undated form.
- Biosolids Public Outreach Feedback Evaluation Form – December 10, 2020.
- YardSmart Brochure Tally – September 18, 2021.
- Notification of Land Application to Local Officials form.
- VCWRF Plant Overview – process flow diagram
- “Drugs and Personal Care Products – Impacts on Water, People, and the Environment” handout.
- “How to Dispose of Medicines Properly” handout.
- Preliminary Survey used as followup on tours.
- Trifold Biosolids information flyer.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2020 – 2021; September 30, 2021.
- Ft. Worth Water Department Website (<http://fortworthtexas.gov/water/biosolids/program/>).
- Interview with Shannon Dunn, Acting 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.
- Wastewater Treatment Plant Tour followup questionnaire form.
- 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 14 – October 6, 2021.
- Reviewed EMS Management Team Roster for 2021.
- Biosolids EMS Manual – Element 7.0 – Table 7.1: Roles and Responsibilities (Department, Roles, Responsible Person, and Responsibilities) – October 6, 2021.
- Biosolids EMS Manual – Element 7.0 – Figure 7.1 – Water Department Organizational Chart, October 6, 2021.
- Biosolids EMS Manual – Element 7.0 – Figure 7.2 – Plant Operations Organizational Chart, October 6, 2021.

- Interview with Shannon Dunn, Acting 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.
- Interviews Greg Roque – Technical Services Specialist – Synagro (contractor); William Brown - Technical Services Specialist – Synagro (contractor); Scott Walker – Land Applicator – Hydro ag (contractor); and Luis Gomez – owner/truck driver, G.I.C. Hauling (contractor)

#### Element 8. Training

- Biosolids EMS Manual – Element 8.0 – Training – Rev 12 – July 22, 2020.
- EMS Training Material – slides and video
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor).
- Interviews Greg Roque – Technical Services Specialist – Synagro (contractor); William Brown - Technical Services Specialist – Synagro (contractor); Scott Walker – Land Applicator – Hydro ag (contractor); and Luis Gomez – owner/truck driver, G.I.C. Hauling (contractor)

#### Element 9. Communications

- Biosolids EMS Manual – Element 9.0 – Communication and Public Outreach – Rev 16 – October 6, 2021.
- Appendix 9A – Complaint and Informantion Requests
- Biosolids EMS Manual – Element 6.0 – Public Participation in Planning – Rev 15 – October 6, 2021.
- Biosolids Public Outreach Feedback Evaluation Form – December 10, 2020.
- YardSmart Brochure Tally – September 18, 2021.
- Ft. Worth Water Department Website (<http://fortworthtexas.gov/water/biosolids/program/>).
- Sludge Thickening Project Tour – September 10, 2021.
- Biosolids – Frequently Asked Questions – flyer.
- Public Outreach Event Log – undated form.
- Preliminary Survey used as followup on tours.
- Trifold Biosolids information flyer.
- 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 Shannon Dunn, Acting 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 – 2020 – 2021; September 30, 2021.
- 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 12 – October 6, 2021.
- Table 10.1 VCWRF SOP manuals by process/location.
- Biosolids EMS Manual – Element 13.0 – Monitoring and Measurement – Rev 13 – October 6, 2021.
- Biosolids Percent Solids Datasheet.
- Interview with Shannon Dunn, Acting 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.
- Interviews with Migdalia Jackson – Assistant Supreintende of Operations, VCWRF; Stacy Walters – Environmental Program Manager, VCWRF; Laly Joseph – Environmental Program Manager, VCWRF; David Nelson – Water Quality Manager, VCWRF.
- Interviews Greg Roque – Technical Services Specialist – Synagro (contractor); William Brown - Technical Services Specialist – Synagro (contractor); Scott Walker – Land Applicator – Hydro ag (contractor); and Luis Gomez – owner/truck driver, G.I.C. Hauling (contractor)
- Field visit to biosolids land application site in Hill County (TX-HI-20; 475 acres; John Abnery): field observation of biosolids unloading, application, and marked boundaries and buffers.
- 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 12 – October 6, 2021.
- Biosolids EMS Manual – Element 11.0 – Table 11.1 -- Emergency Preparedness and Response – Rev 12 – October 6, 2021.

- 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.
- Interview with Shannon Dunn, Acting Assistant Water Director, and Engineering Manager, VCWRF.
- Interview with Christine Webb – Environmental Health and Safety Program 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.
- 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
- Various EMS Manual Element Procedure Change Histories.
- 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 13 – October 6, 2021.
- Biosolids EMS Manual – Element 13.0 – Appendix 13.A: Biosolids Forms; referrence to -- (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).
- Biosolids EMS Manual – Element 13.0 – Appendix 13.B: Plant Forms; referrence to Daily Process Control Worksheets.
- Biosolids EMS Manual – Element 10.0 – Operational Control of Critical Control Points – Rev 12 – October 6, 2021.
- Biosolids Percent Solids Datasheet.



- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF, and Eduardo Prospero – Biosolids Manager, Synagro (contractor)
- Interviews with Migdalia Jackson – Assistant Supreintende of Operations, VCWRF; Stacy Walters – Environmental Program Manager, VCWRF; Laly Joseph – Environmental Program Manager, VCWRF.
- Interviews with David Nelson – Water Quality Manager, VCWRF; Justin Nunemaker – Planner/Scheduler-Asset Management (Maximo), Ft. Worth Water Department; and Prasad Vatokunnel – Asset Manager, VCWRF
- Interviews Greg Roque – Technical Services Specialist – Synagro (contractor); William Brown - Technical Services Specialist – Synagro (contractor); Scott Walker – Land Applicator – Hydro ag (contractor); and Luis Gomez – owner/truck driver, G.I.C. Hauling (contractor)
- Field visit to biosolids land application site in Hill County (TX-HI-20; 475 acres; John Abnery): field observation of biosolids unloading, application, and marked boundaries and buffers.

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

- Biosolids EMS Manual – Element 14.0 – Nonconformance: Preventive & Corrective Action – Rev 15 – October 6, 2021.
- Biosolids EMS Manual – Element 14.0: Corrective Action Notice (CAN) form – March 31, 2020.
- Corrective Action Notice Review form – March 31, 2020.
- Biosolids EMS Manual – Element 16.0 – Internal EMS Audit – Rev 15 – December 10, 2020.
- 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 27 – August 31, 2021; Report Date: October 4, 2021.
- Corrective Action Notice (CAN) – Master List for non-conformance issues identified in 2019 and 2021 (status sheet).
- Spot checked CANs prepared for non-conformance issues identified in 2020 and 2021.
- Reviewed corrective action notices (CANs) from 2020 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 Shannon Dunn, Acting 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 – 2020 – 2021; September 30, 2021.

#### Element 16. Internal EMS Audit

- Biosolids EMS Manual – Element 16.0 – Internal EMS Audit – Rev 15 – December 10, 2020.
- Biosolids EMS Manual – Element 14.0 – Nonconformance: Preventive & Corrective Action – Rev 15 – October 6, 2021.
- Interview with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, serving as internal auditor.
- National Biosolids Partnership EMS Internal Audit Report – Audit Dates August 27 – August 31, 2021; Report Date: October 4, 2021.

#### 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 2:30 – 4:00 on 10/04/21.
- Annual EMS Management Review Meeting attendance list – 10/04/21.
- Reviewed PowerPoint slide presentation for Management Meeting.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2020 – 2021; September 30, 2021.
- Email of October 6, 2021 with attached Meeting Minutes – Biosolids Environmental Management System (EMS) Annual Management Review.
- Interview with Shannon Dunn, Acting Assistant Water Director, and Engineering Manager, VCWRF
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Karen Probert – Senior Environmental Specialist, VCWRF.