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 2007***
NBP – ***Code of Good Practice***
Village Creek Water Reclamation Facility
Environmental Management System for Biosolids Manual
(Latest Revisions – 2018)

Final Report – December 3, 2018

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 supports credibility between re-verification audits. The goal of the third party interim audit is to 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 Village Creek Water Reclamation Facility (VCWRF) Environmental Management System (EMS) for Biosolids is functioning as intended, that practices and procedures are conducted as documented, and that the EMS as implemented conforms to the NBP's Code of Good Practice and 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 24 through October 26, 2018. 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 1 – BMP Manual

- Element 8 – Training
- Element 15 – Biosolids Management Program Report
- Element 17 – Management Review

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, biosolids holding tanks, solids dewatering belt presses, cationic polymer feed system, 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 JCKC-2 in Johnson County.

The following individuals were part of the interim audit process:

Charly Angadicheril–, Assistant Water Director of Wastewater Operations
Jerry Pressley – Acting Assistant Director, Customer Care
Steven Nutter – Biosolids Manager/EMS Manager, VCWRF
Magan Lersch – Senior Environmental Specialist, VCWRF
Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor)
Steve LeBlanc – Dewatering Specialist, REI (contractor)
Margo Wood – Safety Coordinator, Ft. Worth Water Department
Mustapha Muhamad – Training Specialist, Ft. Worth Water Department
Bill Spann – Maintenance Trainer, Ft. Worth Water Department
Justin Nunemaker – Planner/Scheduler-Asset Management (Maximo), Ft. Worth Water Department
John Michael Perkins – Communications Specialist, Ft. Worth Water Department
Gavin Ford – Land Application Specialist, REI (contractor)
Elizabeth Smith – Air Manager, TCEQ Region IV Office - Dallas/Ft. Worth
Brent Candler – Water Quality Work Leader, TCEQ Region IV Office - Dallas/Ft. Worth

INTERIM AUDIT FINDINGS

The interim audit found no major non-conformances, no minor non-conformances, 3 opportunities for improvement and 4 positive commendations.

Positive Observations

- Overall – In the 12 years of auditing BMS programs this is the first audit that has no major or minor nonconformances. This is due to the dedication and excellent work of the biosolids management team and especially the efforts and organizational skills of Magan Lersch.

- Elements 6 & 9 – 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.

- Element 8 – The wastewater facility had made substantial improvements in several of its training programs including operator training, maintenance training and health and safety training.

- Element 15 – The Biosolids Program has developed an excellent Annual Performance Report that captures all of the accomplishments of the Management System and the continual improvements as reflected in it goals and objectives and corrective actions.

Opportunities for Improvement

- Requirement 5.1 – Clarify the specific measurability of the Goal to increase percent solid of biosolids (prior to lime addition) by 3%, to a fixed percent solids concentration (such as 17.25% during every shift), so that the average monthly percent solids concentration does not drop below 18%.

- Requirement 5.1 – Consider establishing a goal and objective for the ratio of preventive maintenance work orders to corrective work orders, to reduce the total resources required for maintenance activities.

- Requirement 14.4 – A corrective action notice has been developed for improving the chemical system for odor control. Consider separating this corrective action notice into two components one for ferric chloride addition and one for chlorine dioxide addition. This will allow the city to address each one independently and close each as they are completed.

VILLAGE CREEK WATER RECLAMATION FACILITY COMMENTS

The NBP certified EMS program has been pivitol to the success of our biosolids program. The City of Fort Worth and its contractor, Renda Environmental Inc., have seen the benefits provided by the EMS and its continual improvement philosophy. As such we will continue to look for ways improve our 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 2018. The Biosolids Manager/EMS manager and the Management Team developed the 5 goals and objectives using the Specific, Measurable, Achievable, Relevant, and Time Bound (SMART) criteria. Additionally, the EMS management team established biosolids goals for its BMP cognizant of each of the four outcome areas of the NBP program as identified below:

- 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 found to be technically or financially infeasible while others experienced considerable delays because of budget constraints. The City of Fort Worth's performance relative to each of its 2018 goals is addressed below and the outcome areas affected by the goal are addressed at the end of each discussion.

Increase Digested Feed Sludge 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 will replace the dissolved air floatation 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.

Outcome Areas: Environmental Performance and Quality Biosolids Management Practices.

Increase Percent Solids Of Biosolids (Prior To Lime Addition) By 3%

Clarification of the measurability of this goal is being developed; since the baseline above which improvements will be measured was established at 15% solids, an improvement to 18% solids has become the goal. Consideration is being given to establishing this goal of 18% as a monthly average, and a goal of not operating below 17.25% during any daily shift. This goal was originally established in April 2014. 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 2017operational 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 the goal of 18% and a daily shift goal of not less than 17.25%. Additional action plan activities related to rehabilitation of belt presses may be able to further improve this goal in the future. The refurbishment of the first two belt presses is scheduled for completion by May 31, 2019.

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 consists 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 be increasing 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 is complete and the project was awarded in September 2018 with the preconstruction meeting scheduled for November 8, 2018. 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.

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

Reduce the Amount of Lime (tons) used per month by 50% (note the base use established for comparison is 250 tons of lime per month).

The concept for this goal and objective was established in December 2015 by the approval of a pilot project to reduce odors, which are primarily caused by lime. Chlorine dioxide was found to be feasible option to improving odor control and lowering the quantity of lime required. By March 2017 modifications of the pug mill were completed to allow lower lime dosages. As of September 2017 chlorine dioxide mixing and piping improvements were completed. A lime reduction study was completed in March 2018 to

determine if lowering the pH from 12 to 11 (reducing the amount of lime) would allow for effective pathogen control. The results indicated that the odors were not adversely affected by the lime reduction and pathogen reduction was effective. Abnormal rain and the use of the Peak Flow Basin have made the SOL field inaccessible for land application and delayed additional studies until circumstances allow, most likely toward the end of 2018.

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 April 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 forth 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 new action plan was added in 2018 to develop two educational videos related to biosolids, which have been completed.

`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.

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

Year 14 (third party) – 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 – October 2, 2018.
- Biosolids EMS Manual Glossary – September 27, 2017.
- Biosolids EMS Manual Planning Schedule (By Calendar Year) – September 21, 2018.
- Biosolids EMS Manual Element 1.0 – Documentation of EMS for Biosolids – Rev 10 – September 21, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Magan Lersch – Senior Environmental Specialist, VCWRF, and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor)
- Biosolids EMS Manual – Procedures for Elements 2, 3 (including Table 3.0), 10, 12 and 13.

Element 2. Biosolids Management Policy

- Biosolids EMS Manual – Element 2.0 – Biosolids Policy – Rev 07 – September 21, 2018.
- Interview with Charly Angadicheril–, Assistant Water Director of Wastewater Operations
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (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 13 – September 27, 2018.
- Biosolids EMS Manual – Element 3.0 – Figure 3.2 VCWRF Biosolids Value Chain (Ft Worth Village Creek Wastewater Treatment Plant process flow diagram) – September 27, 2018.
- 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, – September 27, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Magan Lersch – Senior Environmental Specialist, VCWRF; Mustapha Muhammad – Training Specialist, VCWRP and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (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 of Wastewater Operations.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF; Gavin Ford – Land Application Specialist, REI (contractor), and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor).
- Interviews with Elizabeth Smith – Air Manager, TCEQ Region IV Office - Dallas/Ft. Worth, and Brent Candler – Water Quality Work Leader, TCEQ Region IV Office - Dallas/Ft. Worth.
- Table entitled Regulations Applicable to the Village Creek Wastewater Reclamation Facility Biosolids Value Chain attached to Biosolids EMS Manual Element 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.
- SOPs for Land Application and Digester Operation.

Element 5. Goals and Objectives for Continual Improvement

- Biosolids EMS Manual – Element 5.0 – Biosolids Goals and Objectives – Rev 15 – September 21, 2018.
- Biosolids EMS Public Outreach Evaluation Form.
- Interview with Charly Angadicheril – Assistant Water Director of Wastewater Operations.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF; Glory Walker – Senior Environmental Specialist, VCWRF; Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor);
- Appendix 5a: Biosolids Goals and Objectives – EMS Element 5.0 (Currently active) – September 27, 2018.
- Appendix 5a: Biosolids Goals and Objectives – EMS Element 5.0 (Currently active) – June 28, 2018.
- Appendix 5a: Biosolids Goals and Objectives – EMS Element 5.0 (Currently active) – March 30, 2018.
- Appendix 5a: Biosolids Goals and Objectives – EMS Element 5.0 (Currently active) – January 5, 2018.

- Detailed review of each currently active Goal and Objective in 2018.
- Ft. Worth Water Department Website (http://fortworthtexas.gov/water/biosolids/program/)
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2017 - 2018.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2016 - 2017.

Element 6. Public Participation in Planning

- Biosolids EMS Manual – Element 6.0 – Public Participation in Planning – Rev 11 – September 26, 2018.
- Biosolids EMS Manual – Element 9.0 – Communication and Public Outreach – Rev 13 – September 26, 2018.
- Biosolids Communication Plan – July 2018.
- Ft. Worth Water Department Website (http://fortworthtexas.gov/water/biosolids/program/)
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRP; Magan Lersch – Senior Environmental Specialist, VCWRF; John Michael Perkins – Communications Specialist, Ft. Worth Water Department and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor).
- Ft. Worth SOP for Audit Notification of Interested Parties, Rev 00, 7/13/16.
- Landowner and Interested Party third party EMS audit notification dated October 5, 2018.
- Biosolids Public Outreach Feedback Evaluation Form – undated.
- Biosolids Public Outreach Event Log – undated.
- Notification of Land Application to Local Officials form – undated.
- Biosolids Post Analysis for Facebook and Twitter including reach and views associated with various postings (English and Spanish).
- Single sheet double sided Frequently Asked Questions (FAQ) on biosolids. Undated
- Biosolids FAQ – trifold handout created by RENDA Environmental.

Element 7. Roles and Responsibilities

- Biosolids EMS Manual – Element 7.0 – Roles and Responsibilities – Rev 12 – September 27, 2018.
- 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.

- Interviews Charly Angadicheril– Assistant Water Director of Wastewater Operations; Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; and Magan Lersch – Senior Environmental Specialist, VCWRF.
- Interviews with Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor); Steve LeBlanc – Dewatering Specialist, REI (contractor) and Gavin Ford – Land Application Specialist, REI (contractor)
- Interviews with Margo Wood – Safety Coordinator, Ft. Worth Water Department; Mustapha Muhammad – Training Specialist, Ft. Worth Water Department; Bill Spann – Maintenance Trainer, Ft. Worth Water Department; and Justin Nunemaker –Planner/Scheduler- Asset Management (Maximo), Ft. Worth Water Department.

Element 8. Training

- Biosolids EMS Manual – Element 8.0 – Training – Rev 11 – September 21, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF; and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor) and Gavin Ford – Land Application Specialist, REI (contractor)
- Interviews with Margo Wood – Safety Coordinator, Ft. Worth Water Department; Mustapha Muhammad – Training Specialist, Ft. Worth Water Department; Bill Spann – Maintenance Trainer, Ft. Worth Water Department; and Justin Nunemaker – Planner/Scheduler-Asset Management (Maximo), Ft. Worth Water Department.
- TCEQ Instructor Qualification for Mr. Mustapha Muhammad – October 18, 2018.
- Biosolids EMS power point training presentation.

Element 9. Communications

- Biosolids EMS Manual – Element 9.0 – Communication and Public Outreach – Rev 13 – September 26, 2018.
- Biosolids Communication Plan – July 2018.
- Biosolids Post Analysis for Facebook and Twitter including reach and views associated with various postings (English and Spanish).
- Ft. Worth Water Department Website (http://fortworthtexas.gov/water/biosolids/program/)
- Biosolids EMS Manual – Element 6.0 – Public Participation in Planning – Rev 11 – September 26, 2018.
- Biosolids Complaint Form.
- Biosolids Complaint Log Listing form.
- Field Observation Report
- Close-out Site Visit Form
- RENDA – Biosolids Complaint Form
- RENDA - Web-Based Biosolids Complaint log
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF; John Michael Perkins

– Communications Specialist, Ft. Worth Water Department; Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor) and Gavin Ford – Land Application Specialist, REI (contractor)
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2017 - 2018.
- Biosolids Complaint Log Listings through October 2018.
- Single sheet double sided Frequently Asked Questions (FAQ) on biosolids. Undated
- Biosolids FAQ – trifold handout created by RENDA Environmental.
- Village Creek Water Reclamation Facility 1 page trifold leaflet on Biosolids Beneficial Reuse & Recycling Program. Undated – new in 2015.
- The Biosolids Digest – April 2018 – Volume 1 Issue 1.
- Summary of tour data for 2017.

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.
- Biosolids EMS Manual – Element 13.0 – Monitoring and Measurement – Rev 12 – September 21, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF; Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor); Steve LeBlanc – Dewatering Specialist, REI (contractor), and Gavin Ford – Land Application Specialist, REI (contractor)
- Field visit to land application site at Kirk Carrell's farm (533 acres) in Johnson County (JKJC2).
- SOP binders for wastewater treatment plant.
- Reviewed Binder on Headworks SOPs – various revisions and effective dates (screens, coarse screens, fine screens, bar screens, HW conveyors for coarse screens, and dumpsters).
- RENDA SOP binder – Land Application EMS SOPs. (Field book - waterproof paper)
- Reviewed Lock-out/Tag-out program procedures

Element 11. Emergency Preparedness and Response

- Not Reviewed.

Element 12. EMS Documentation and Document Control

- Biosolids EMS Manual – Element 12.0 – EMS Documentation & Document Control – Rev 11 – September 26, 2018.
- 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 – September 26, 2018.
- Biosolids EMS Manual – Element 12.0/Figure 12.1 – Pretreatment Data Management System – September 26, 2018.
- Biosolids EMS Manual Issue Log – September 27, 2017. (Element Procedures change history.)
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF, and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor).
- Biosolids EMS Manual – Element Procedures change history logs for each.

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 Sludge Only Landfill 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.
- Land application site map for JKJC2 – Johnson County, Kirk Carrell's farm (133 acres) with boundaries and buffers.
- Complaint data, reporting year August 2017 – July 2018.
- Infotube FAQ Data, reporting year August 2017 – July 2018 for 31 sites receiving biosolids land application.
- Summary of tour data for 2017.
- Biosolids Post Analytics for Facebook and Twitter including reach and views associated with various postings (English and Spanish).
- Percent total solids after lime addition by year from 2010 through 2018 year to date.
- Percent total solids before lime addition by month and historical running average from November 2013 through September 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF; Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor); Steve LeBlanc – Dewatering Specialist, REI (contractor), and Gavin Ford – Land Application Specialist, REI (contractor)
- Review REI Field Book containing land application site directions and all relevant SOPs for land application

Element 14. Nonconformances: Preventive and Corrective Action

- Biosolids EMS Manual – Element 14.0 – Nonconformance: Preventive & Corrective Action – Rev 11 – September 21, 2018.
- Biosolids EMS Manual – Element 14.0: Corrective Action Notice (CAN) form – September 21, 2018.
- Corrective Action Notice Review form – September 21, 2018.
- Biosolids EMS Manual – Element 16.0 – Internal EMS Audit – Rev 14 – September 21, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF; Magan Lersch – Senior Environmental Specialist, VCWRF; and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor)
- Corrective Action Notice (CAN) – Master List for non-conformance issues identified in 2017 and 2018.
- Reviewed corrective actions from 2017 external third party BMP audit.
- Summary table of Corrective Action Plans developed from monitoring and measurement observations: project description, objective, key outcomes, target completion date, responsibility for tracking, completed actions, corrective action/current status, future actions to be completed, and completion date.

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.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Magan Lersch – Senior Environmental Specialist, VCWRF, and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor)
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2017 - 2018.

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 11 – September 21, 2018.
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Magan Lersch – Senior Environmental Specialist, VCWRF, and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor)
- National Biosolids Partnership EMS Internal Audit Report – September 26, 2018.

Element 17. Periodic Management Review of Performance

- Biosolids EMS Manual – Element 17.0 – Periodic Management Review of Performance – Rev 09 – September 21, 2018.
- Agenda for Management Review Meeting.
- Biosolids Annual Management Review Report for reporting period of August 1, 2017 to July 31, 2018. October 9, 2018, 10:00 AM.

- Review of PowerPoint slide presentation for Management Meeting.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report – 2017 - 2018.
- Interview with Charly Angadicheril–, Assistant Water Director of Wastewater Operations
- Interviews with Steven Nutter – Biosolids Manager/EMS Manager, VCWRF, Magan Lersch – Senior Environmental Specialist, VCWRF, and Ben Davis – Biosolids Manager, Renda Environmental, Inc. (REI) (contractor)