

**NATIONAL BIOSOLIDS PARTNERSHIP
NINTH INTERIM AUDIT REPORT**

**Village Creek Waste Water Treatment Plant
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 Wastewater Treatment Plant
Environmental Management System for Biosolids Manual
(*Latest Revisions – August 2013*)**

Draft Report – October 13, 2014

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 Waste Water Treatment Plant (VCWWTP) 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 VCWWTP's ninth interim audit, review of their EMS for biosolids, and verification of the closure of the system's single major nonconformance are positive, and it is the recommendation of the audit team that the Wastewater Treatment Facility BMP maintain its platinum level certification status.

AUDIT SCOPE

The NSF-ISR conducted a third party interim audit of the VCWWTP's EMS for Biosolids from October 8 through October 10, 2014. The on-site interim audit team consisted of Dr. William R. Hancuff, Lead Auditor.

The scope of the ninth interim audit included a review of areas generally related to the organization's progress toward goals and objectives; BMP outcome requirements for environmental performance, regulatory compliance, relations with interested parties, and quality biosolids management practices; actions taken to correct minor non-conformances; the management review process; and corrective and preventive action notices and responses. The review of these areas is generally covered in Elements 5, 14, 16 and 17. In addition, other BMP components that were generally be audited included Elements 1, 2, 6, 9, 14, 15, and 16, while specific elements that were audited in their entirety were Elements 2, 4, 7, and 11.

In general terms, the 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 interim audit included the VCWWTP administrative offices, primary settling tanks, aeration tanks, secondary clarifiers, anaerobic digesters, solids dewatering belt presses, lime stabilization process,

biosolids holding tanks, chlorination/dechlorination facilities, on-site biosolids storage area, biosolids truck loading, truck transportation route, staging at land application site, and biosolids land application site HLTK – 1 in Hill County.

The following individuals were interviewed as part of the interim audit process:

Sebastian “Buster” Fichera – Assistant Water Director of Wastewater Treatment
Steven Nutter – Biosolids Manager/EMS Manager, VCWWTP
Magan Lersch – Senior Environmental Specialist, VCWWTP
Jerry Pressley – Water System Superintendent, VCWWTP
Perry Williams – Assistant Water System Superintendent, VCWWTP
Ben Davis – Renda Environmental, Inc. (REI) – Biosolids Manager
Anna Pena – Plant Engineer, VCWWTP
Ginger Laird – Training Specialist, VCWWTP
Elizabeth Smith – Air Section Manager – TCEQ Region IV
Elizabeth Moman – Air Sect. Environ. Investigator – TCEQ Waco/Austin Region
Carlos Andrade – Operations Manager, REI (contractor)
Mike Ferguson – Belt Press Operator, REI (contractor)
Douglas Gomez – Vehicle Operator, REI (contractor)
Jose Valdez – Land Application Supervisor, REI

INTERIM AUDIT FINDINGS

The ninth interim audit identified 1 positive commendation, 1 major non-conformance, 1 minor non-conformance and 4 opportunities for improvement.

The following presents the positive observation made during the interim audit, followed by the major nonconformance (corrected), minor non-conformance and opportunities for improvement. The latter are listed by requirement number in the sequence of the Third Party Verification Auditor Guidance.

Positive Observation

Fort Worth wastewater treatment plant personnel have developed an exemplary set of standard operating procedures (SOPs) that clearly present the most important step-by-step operational controls needed for each of the functional critical control points in the biosolids value chain. These SOPs include start-up, shut down and trouble shooting, and were developed using input from operational staff to ensure their accuracy and usefulness.

Major Nonconformance

Requirement 9.1 – The standard requires that the organization establish and maintain a proactive communication program that provides ongoing information about the BMP to interested parties and the public, consistent with local circumstances, the method of biosolids management, public communication history, and degree of current interest in its

biosolids management activities. The Fort Worth has had an extremely large increase in the number of odor complaints associated with the land application of biosolids. The number of complaints is being fueled by a negative social media campaign siting concerns with safety and human health (as well as odor). Fort Worth has not developed a proactive communication program (e.g. social media) to provide information on human health safety or the multitude of benefits attributable to land application of biosolids. The increase in public communication history and current increased interest in biosolids management activities requires a commensurate increase in proactive public communication. Fort Worth has not developed the required proactive communication program.

Minor Nonconformance

Requirement 6.2 – The Fort Worth Public Participation in Planning EMS Element 6.0 procedure indicates that the City shall notify landowners of upcoming interim and verification audits. There was no evidence available to demonstrate that landowners were provided notification of the most recent interim audit. (Note: a key area of interpretation of this element is that the procedure address approaches for interested parties to observe the third party audit.)

Opportunities for Improvement

Requirement 2.1 – Consider obtaining formal approval of the proposed EMS policy statement, including the necessary signatures. The newly revised policy was presented and discussed at the most recent management review meeting but approval was not identified as an action item.

Requirement 5.1 – Consider quantifying the goal associated with sludge de-gritting disposal as an increase of grit collected in measureable units such as volume (cubic yards) or weight (pounds or tons).

Requirement 5.1 – Several goals associated with odor control established a measureable goal of reducing odor complaints to the number received in 2008. Consider specifying a number of complaints as a baseline (e.g. 45) and establishing a goal to reduce that number each year for the next few years, identifying a specific numerical goal for each year. Also consider clarifying that the complaint count is associated with biosolids land application activities only.

Requirement 5.2 – Consider developing a goal and objective to quantify the annual operating cost of producing and beneficially using biosolids. Consider including a detailed breakdown of amortized capital costs, cost of labor, cost of materials and supplies, and cost of energy. Also consider identification of costs attributable to each of the critical control points in the biosolids value chain.

Requirement 5.7 – Review the biosolids goals and objectives and consider whether some are actually action plans that describe steps to accomplish a common goal.

Requirement 9.1 – Consider having Todd Kimbrell, a farmer who has used biosolids on his land for many years, participate in the creation of a video (or U-tube) to explain the benefits of farming using biosolids.

Requirement 10.1 – Consider updating the Land Application Site Visit Standard Operating Procedure to include the new Texas 312 regulatory requirements.

VILLAGE CREEK WASTEWATER TREATMENT PLANT COMMENTS

TO BE COMPLETED BY FT WORTH

OUTCOMES MATTER

The City of Fort Worth Village Creek Wastewater Treatment Facility renovated its goals and objectives approach in 2011 and has continued this evolution through 2014. The approach establishes goals on an annual basis in September of each year and closes or removes those goals that have been accomplished or found to be infeasible. The next step in the evolution is planned to add and/or remove goals and objectives as needed on a quarterly basis.

The new goals and objectives were developed recognizing the concerns of the general public for costs and to proactively reduce the financial burden on taxpayers. Overall the goals and objectives will result in substantial gains in biosolids management, reduction in cost of operation, and generation of energy to offset operational demands. Additionally, considerable effort was made to address some of the greatest public concerns associated with odor generation and complaints.

Fort Worth listed seven goals in 2013, some of which were carried over from earlier years. Associated with those goals were numerous objectives that were actually action plan steps associated with accomplishing the goals.

The EMS Coordinator and the EMS Team revised former goals and developed additional goals in 2014. The goals were developed for the most part using Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) criteria.

Those goals listed for FY 2014 (September 2013) included :

- Implementation of new turbine waste heat recovery system
- Conduct grit control study
- Create a biosolids master plan
- Initiate a pilot project to aerate holding tank 1 to reduce odors associated with biosolids land application

- Study to evaluate biosolids odors associated with high strength waste
- Assess effectiveness of BIOGLOX on biosolids odors
- Increase biosolids outreach activities in response to public concerns

And the goals listed for FY 2015 (September 2014) included:

- Sludge de-gritting disposal
- Create biosolids master plan
- Study to evaluate odors associated with high strength waste, polymer, lime addition
- Increase biosolids outreach activities
- Utilize scum screening as organic source for co-digestion
- Install third GBT unit to increase solids stability
- Conduct biosolids study (Arcadis) to evaluate solids production at Village Creek and Solids Only Landfill (SOL)
- Initiate dissolved air floatation treatment (DAFT) overflow project
- Dewatering facility upgrades
- Minimize struvite at belt filter presses

All of the above goals were established cognizant of each of the four NBP required outcome areas listed below:

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

While it is not a requirement to accomplish all goals and objectives established, it is a critical component of the system to make progress towards achieving the majority. Fort Worth continued improvement of its Environmental Management System for Biosolids through progressing and completing goals established in previous years as well as the current year. A brief summary of the facility's performance is presented below and the outcome groups affected by the goal are addressed at the end of the discussion.

FY 2014 – Implementation of new turbine waste heat recovery system (Completed)

The first goal listed for FY 2014 was the implementation of a new turbine waste heat recovery system to generate power to meet the requirement of the wastewater treatment plant and possibly feed excess energy back into the power grid. The system consists of a heat recovery steam generator (HRSG), which drives steam turbines that generate electricity used to power the aeration basin blowers and supply air to the odor control biofilters and scrubbers. These turbines are to be used to capture waste heat from the methane gas produced by the digesters and land fill gas that is now being flared as a

waste. The design and construction of this facility is complete and testing was finished in December 2012. The final cost savings associated with this goal decreased the need to purchase 13 million kWh/year of power and resulted in a cost savings of \$940,000 based on September 2013 data. The average run time for steam blowers was 98.79% and the average output was 81.67%. This goal results in positive outcomes in environmental performance, relations with interested parties (cost savings) and quality biosolids management practices.

FY 2014 – Grit Control Study, and FY 2015 – Sludge De-gritting Disposal

The second FY 2014 listed goal is to conduct a grit control study, which ultimately may be used to evaluate the benefits associated with improved grit removal. This program is intended to remove grit before it enters the downstream biosolids value chain critical control points, to reduce the maintenance, repair and replacement of pumps, and to prevent grit from entering the digesters, which decreases the effective volume of these units. Enhanced grit removal also has the benefit of improving the final biosolids product by removing undesirable material before it becomes part of the land application process. The first objective of this goal is to prepare a report on the influent grit characterization. A contract was awarded to provide the characterization on May 15, 2012. This initial effort was scheduled for completion in October 2012; however, the data acquisition was not completed until 30 May 2013. The schedule was again extended for completion of the data analysis and report preparation until 31 March 2014. The data analysis was still ongoing (October 2014), while a new objective was established towards the end of 2014 for FY 2015.

FY 2015 – Sludge De-grit Disposal

The first listed FY 2015 goal is an outgrowth from the 2014 grit study goal. The objective is to perform a sludge de-gritting performance evaluation with the intention of removing 75% of the grit. This new goal involved installation of grit removal by clarifiers followed by installation of grit washing, dewatering, storage and landfilling. Grit sampling had to be performed to ensure compliance with landfill disposal requirements. Grit washing was installed in mid-September 2014 and grit began being hauled to the landfill by the end of that month. An initial one month trial period was underway during the time of the interim audit to determine the degree of effectiveness. The above two goals result in positive outcomes in environmental performance and quality biosolids management practices.

FY 2014 and 2015 – Create a Biosolids Master Plan

The third listed goal for 2014 and the second listed goal for 2015 were the same, i.e. to prepare a biosolids master plan. The objectives of this goal are to prepare a market study for all biosolids beneficial use options and evaluate a maximum number of alternative drying methods and biosolids processing along with end uses. A contract has been awarded to include: establishing a set of weighted non-monetary evaluation criteria to guide the development and screening of long-term alternatives; to develop biosolids

projections and evaluate short term capacity requirements; to develop and screen alternatives; to conduct a market analysis of biosolids end use products; to provide detailed alternative evaluations to refine long-term biosolids plan and operational strategies, and to prepare long-term biosolids management recommendations. The project commenced in April 2012 and is scheduled to have an action plan developed by the end of 2014. A new focus of the master plan will be to address the increasing number of odor complaints associated with land application of biosolids. This goal will result in positive outcomes in all required areas; namely, environmental performance, regulatory compliance, relations with interested parties, and quality biosolids management practices.

FY 2014 - Pilot project – Aeration of Holding Tank 1 to Reduce Odors Associated with Biosolids Land Application

The fourth goal of 2014 was to attempt to reduce odors in response to the large number of serious odor complaints at the sludge only landfill (SOL) site where biosolids are stabilized and at the land application sites where class B biosolids are applied. The action plan for this goal included retaining a consultant, evaluating aerators and designing a system, purchase of aerators, cleaning grit from storage tank 1, installation of aerators and evaluating effectiveness through measurement of dissolved oxygen in the tanks prior to polymer addition. All actions were completed by 27 December 2013. Although the pilot program was successful in reducing severity of the odors generated at the SOL, it was only a limited success since the number of odor complaints increased.

This goal is intended to have positive outcomes in all areas: environmental performance, regulatory compliance, relations with interested parties, and quality biosolids management practices.

FY 2014 and FY 2015 - Study to Evaluate Biosolids Odors Associated with High Strength Waste, Polymer and Lime Addition.

The fifth listed goal for 2014 and the third listed goal for 2015 were the same and were intended as a goal to further identify sources of odor, which have plagued the facilities, in order to be able to better control of eliminate them at the source. A consultant was retained to perform sampling and analysis to evaluate odors associated with high strength waste, lime addition and dosage, and polymer addition. The results of the investigation demonstrated conclusively that lime has a profound impact on odor generation and a new goal should be developed to determine the feasibility of eliminating lime from the biosolids value chain. The outcome areas impacted by this goal include environmental performance, regulatory compliance, relations with interested parties, and quality biosolids management practices.

FY 2014 - Assess Effectiveness of BIOGLOX on Biosolids Odors

The sixth listed goal for 2014 was developed as an evaluation of a method to reduce or control odor generation. Bioglox is a new treatment that delivers a stabilized hydrogen peroxide and glycolic acid solution with a potent redox reaction. The goal was to have Bioglox evaluate their product for use in treating biosolids odors using a bench scale test

followed by a pilot project. Evaluation of effectiveness was completed and it was determined that Bioglox was not cost/effective in reducing odors associated with lime treatment nor meeting pathogen reduction requirements necessary to be feasible option. The goal was removed and there is expected to be no further action. The outcome areas which could have been impacted by this goal included environmental performance, regulatory compliance, relations with interested parties, and quality biosolids management practices.

FY 2014 and 2015 - Increase Biosolids Outreach Activities in Response to Public Concerns.

The seventh listed goal for 2014 and the fourth listed goal for 2015 were the same. The initial objective established in 2014 was to identify four public/third party issues or concerns related to the biosolids value chain. Once identified contact three external agencies or conduct presentation with one external agency. The goal was modified during FY 2014 by adding the creation of an online complaint form for citizens to submit directly to the biosolids program and to update the biosolids webpages to include information regarding odor issues and odor monitoring. The increase in outreach activities also included plant tours and the number of comments increased from 4 in 2012/2013 to 23 in 2013/2014. The outcome area impacted by this goal includes relations with interested parties.

FY 2015 - Utilize Scum Screening as Organic Source for Co-digestion

The fifth listed goal for 2015 was actually initiated in March 2014 and taken through the design and commencement of construction in early July 2014. Completion of construction is scheduled for the end of November 2014. It is anticipated that there will be an increase in gas production by at least 5%. Prior to co-digestion with high strength waste the quantity of digester gas was in the range of 600 to 800 scfm. After co-digestion gas production averages 1200 to 1400 scfm and can reach 1800 scfm on a monthly basis. The addition of scum screening may increase the average to between 1260 and 1470 scfm. The outcome areas impacted by this goal include environmental performance, relations with interested parties, and quality biosolids management practices.

FY 2015 - Install Third GBT Unit to Increase Solids Stability

The sixth listed goal for 2015 was actually added as a goal in March 2014. Although the final design was completed in May 2013, construction was not scheduled for completion until the end of October 2014. Once completed the digested solids are projected to increase to at least 2.5%. The outcome areas impacted by this goal include environmental performance and quality biosolids management practices.

FY 2015 - Conduct Biosolids Study (Arcadis) to Evaluate Solids Production at Village Creek and Solids Only Landfill (SOL)

The seventh listed goal for 2015 was actually added as a goal in June 2014. This is a comprehensive study that analyzes the potential interactions of the activities at the water treatment plants, the Village Creek Water Reclamation Facility and the dewatering facility at the Sludge Only Landfill (SOL) and their effects on the overall quality of the biosolids material and its odors. A technical memo on odor monitoring was submitted the first of September 2014 and the draft report is scheduled for delivery on November 1, 2014. The anticipated improvement associated with report recommendations is an increase in percent solids to 18% prior to lime addition. The outcome areas impacted by this goal include environmental performance, relations with interested parties, and quality biosolids management practices.

FY 2015 - Initiate Dissolved Air Flootation Treatment (DAFT) Overflow Project

The eighth listed goal for 2015 was actually added as a goal in June 2014. The target of this objective is to increase the percent solids of biosolids prior to lime addition by 2%, sampled at the drop off from the conveyor belt, which feeds into the lime addition system. Design modifications to the existing DAFT began in March 2014, upgrades and rehabilitation commenced at the end of April and was completed by mid-June. A three month trial period began the first of August and was scheduled for completion by the end of October. The evaluation was not complete at the time of the interim audit. The outcome areas impacted by this goal include environmental performance and quality biosolids management practices.

FY 2015 - Dewatering Facility Upgrades

The ninth listed goal for 2015 was also added as a goal in June 2014. The upgrade to the dewatering system involves the addition of a new design heavy duty belt press from Andritz that is claimed to be able to consistently produce 3% higher solids concentration off the belt when compared to the original Andritz equipment. The addition of a sixth dewatering belt will not only increase the solids concentration being feed to the lime addition system but will also increase the flexibility of the dewatering operation by adding capacity. The design for the new equipment placement was scheduled for completion by the end of September 2014 but was slightly behind. The installation of the press along with an upgrade to the polymer feed and lime systems are scheduled for February 28, 2015. The outcome areas impacted by this goal include environmental performance and quality biosolids management practices.

FY 2015 - Minimize Struvite at Belt Filter Presses

The tenth listed goal for 2015 was added as a goal in September 2014. The theory to controlling struvite at the belt filter presses relies on the remove of phosphate at a strategic location within the biosolids value chain through the addition of a ferric salt, in this case ferric sulfate. The intent is to chemically complex the phosphate so that it will not form struvite. The installation of the ferric addition station was completed in August 2014 and the dosage optimization of ferric addition is scheduled for completion by the end of the calendar year but the identification of the precise location for application of the

ferric is not scheduled until March 2015. The outcome areas impacted by this goal include environmental performance and quality biosolids management practices.

CONCLUSIONS AND RECOMMENDATIONS

The results of the interim audit found a major non-conformity, which had to be corrected and implemented before recommendation of continued certification could be made. The review and approval of the corrective action plans for the minor non-conformity identified during the audit had corrective action notices prepared and approved. Therefore, once the major nonconformance is verified as closed it will be the recommendation of the audit team that the Village Creek Wastewater Treatment Plant's EMS for biosolids maintain its platinum level certification status.

Discussions between the VCWWTP 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 were audited according to the following schedule:

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

Year 7 (third party) – Elements 1, 10, 12, 13 (Completed)

Year 8 (third party) – Elements 3, 8, 15, 17 (Completed)

Year 9 (third party) – Elements 2, 4, 7, 11 (Completed)

Year 10 (third party) – Reverification – All elements

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.

Additionally, based on the timing of the City's biosolids management system annual cycle, it was determined to maintain the anniversary date for all future interim and re-verification audits as October 15 with the intention of completing those audits during the first part of October each year.

Attachment 1

Documents and Other Object Evidence Reviewed During the Ninth Interim Audit

Element 1. BMP Manual

- Environmental Management System (EMS) – Fort Worth Water Department - Village Creek Wastewater Treatment Plant – Biosolids Beneficial Reuse/Recycling – Annual EMS Manual – 2014.
- Documentation of EMS for Biosolids – EMS Element 1.0 – Rev 08– Aug 5, 2013.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Biosolids Policy – EMS Element 2.0 – Rev 05 – Aug 5, 2013.
- Critical Control Points – EMS Element 3.0 – Rev 10 – Oct 06, 2014.
- Legal and Other Requirements – EMS Element 4.0 – Rev 09 – Oct 06, 2014.
- Biosolids Goals & Objectives – EMS Element 5.0 – Rev 13 – Jan 6, 2014.
- Public Participation in Planning – EMS Element 6.0 – Rev 09 – Oct 06, 2014.
- Roles and Responsibilities – EMS Element 7.0 – Rev 08 – Aug 5, 2013.
- Training – EMS Element 8.0 – Rev 08 – Oct 06, 2014.
- Communications & Public Outreach – EMS Element 9.0 – Rev 11 – Oct 06, 2014.
- Operational Control of Critical Control Points – EMS Element 10.0 – Rev 09 – Oct 06, 2014.
- Emergency Preparedness & Response – EMS Element 11.0 – Rev 07 – Aug 5, 2013.
- EMS Documentation and Document Control – EMS Element 12.0 – Rev 09 – Oct 06, 2014.
- Monitoring and Measurement – EMS Element 13.0 – Rev 10 – Oct 06, 2014.
- Nonconformance: Preventive & Corrective Action – EMS Element 14.0 – Rev 08 – Oct 06, 2014.
- Biosolids Program & EMS Performance Report – EMS Element 15.0 – Rev 07 – Aug 5, 2013.
- Internal EMS Audit – EMS Element 16.0 – Rev 12 – Oct 06, 2014.
- Periodic Management Review of Performance – EMS Element 17.0 – Rev 07 – Aug 5, 2013.
- EMS Planning Schedule (By Calendar Year) – November 4, 2013.

Element 2. Biosolids Management Policy

- Biosolids Policy – EMS Element 2.0 – Rev 05 – Aug 5, 2013.
- Interview with Sebastian “Buster” Fichera
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Website – Fort Worth – Water – Wastewater – Biosolids – Environmental Management System – Manual – Policy.
- Proposed new Biosolids Policy – October 2014.

Element 3. Critical Control Points

- Critical Control Points – EMS Element 3.0 – Rev 10 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, Ben Davis, Jerry Pressley, Anna Pena, and Perry Williams
- Village Creek Water Reclamation Facility – Biosolids Value Chain Process Flow Diagram – Oct 06, 2014.
- EMS Master Table – EMS Element 3.0 presenting Biosolids Value Chain, Critical Control Points, Roles and Responsibilities, Operational Controls [including regulatory documents, standard operating procedures, other documents, location of SOP, key operational parameters and monitoring activities (including activity and frequency)], and Environmental Impacts – Oct 06, 2014.

Element 4. Legal and Other Requirements

- Legal and Other Requirements – EMS Element 4.0 – Rev 09 – Oct 06, 2014.
- Village Creek Water Reclamation Facility – Regulations Applicable to the VCWRF Biosolids Value Chain – Oct 06, 2014.
- Interviews with Sebastian “Buster” Fichera, Steven Nutter, Magan Lersch, Ben Davis, Jerry Pressley, Anna Pena, and Elizabeth Smith – TCEQ – Air Section Manager and Elizabeth Moman – TCEQ – Air Section Investigator.
- Reviewed new TCEQ Chapter 312 – Sludge Use, Disposal, and Transportation Rule.
- TCEQ Region 4 – DFW – Report No. 1184648 Investigation Report – June 13, 2014.

Element 5. Goals and Objectives

- Biosolids Goals & Objectives – EMS Element 5.0 – Rev 13 – Jan 6, 2014.
- Interview with Sebastian “Buster” Fichera.
- Interviews with Steven Nutter, Magan Lersch, Ben Davis, Jerry Pressley and Anna Pena.
- Biosolids Goals and Objectives Summary – EMS Element 5.0 Appendix 5a (Current status including new G&O for 2014) – 10 October 2013.
- Biosolids Goals and Objectives Summary – EMS Element 5.0 Appendix 5a (Current status including new G&O for 2014) – 31 December 2013.
- Biosolids Goals and Objectives Summary – EMS Element 5.0 Appendix 5a (Current status including new G&O for 2014) – 20 March 2014.
- Biosolids Goals and Objectives Summary – EMS Element 5.0 Appendix 5a (Current status including new G&O for 2014) – 30 June 2014.
- Biosolids Goals and Objectives Summary – EMS Element 5.0 Appendix 5a (Current status including new G&O for 2015) – 25 September 2014.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report 2013 – 2014.

Element 6. Public Participation in Planning

- Public Participation in Planning – EMS Element 6.0 – Rev 09 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, Ben Davis, and Ginger Laird.
- Interviews with Elizabeth Smith – TCEQ – Air Section Manager and Elizabeth Moman – TCEQ – Air Section Investigator.
- City of Fort Worth Website – Public announcement of biosolids EMS audit Wednesday, October 8 through Friday, October 10, 2014 (website).
- October 1, 2014 E-mail invitation to contribute to the external third party BMP audit to be conducted October 8 – 10, 2014.
- Ft Worth Website containing – Biosolids Complaint, Annual Audit, & Environmental Health & Safety information sheet.
- Public Participation Feedback Evaluation Form (sample from Nov 8, 2013).

Element 7. Roles and Responsibilities

- Roles and Responsibilities – EMS Element 7.0 – Rev 08 – Aug 5, 2013.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Table 1: Roles and Responsibilities – EMS Element 7.0 – Aug 5, 2013.

Element 8. Training

- Training – EMS Element 8.0 – Rev 08 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Interviews with biosolids contractor personnel; Carlos Andrade – Operations Manager, Mike Ferguson – Belt Press Operator, Douglas Gomez – Vehicle Operator, and Jose Valdez – Land Application Supervisor.

Element 9. Communications

- Communications & Public Outreach – EMS Element 9.0 – Rev 11 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, Ben Davis, and Ginger Laird.
- Interviews with Elizabeth Smith – TCEQ – Air Section Manager and Elizabeth Moman – TCEQ – Air Section Investigator.
- Village Creek Water Reclamation Facility – Overview in EMS Introduction – October 6, 2014.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report 2013 – 2014.
- City of Fort Worth Website – Biosolids Program.
- City of Fort Worth Website – Biosolids Complaint, Annual Audit & Environmental Health and Safety
- Reviewed Odor Complaint Investigations by TCEQ for 2013 and 2014.
- October 1, 2014 E-mail invitation to contribute to the external third party BMP audit to be conducted October 8 – 10, 2014.

- Publicly posted NOTICE – Class AB Biosolids Beneficial Reuses Land Application Site at farm land application site.
- Ft Worth Website containing – Biosolids Complaint, Annual Audit, & Environmental Health & Safety information sheet.

Element 10. Operational Control of Critical Control Points

- Operational Control of Critical Control Points – EMS Element 10.0 – Rev 09 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Interviews with Jerry Pressley, Perry Williams and Anna Pena
- Interviews with biosolids contractor personnel; Carlos Andrade – Operations Manager, Mike Ferguson – Belt Press Operator, Douglas Gomez – Vehicle Operator, and Jose Valdez – Land Application Supervisor.
- Reviewed SOP Master Files Binder and SOP Binders (CCP Manuals)
- Field visit to land application site in Hill County at Todd Kimbrell farming operation (HLTK-1)
- Renda Environmental EMS Standard Operating Procedure Manual.
- Status report on SOP development and updates – October 8, 2014.
- Review of SOP for Land Application Site Visits.
- Review Renda Environmental Transportation SOP DT1357.

Element 11. Emergency Preparedness and Response

- Emergency Preparedness & Response – EMS Element 11.0 – Rev 07 – Aug 5, 2013.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Interviews with biosolids contractor personnel; Carlos Andrade – Operations Manager, Mike Ferguson – Belt Press Operator, Douglas Gomez – Vehicle Operator, and Jose Valdez – Land Application Supervisor.

Element 12. BMP Documentation and Document Control

- Environmental Management System (EMS) – Fort Worth Water Department - Village Creek Wastewater Treatment Plant – Biosolids Beneficial Reuse/Recycling – Annual EMS Manual – 2014.
- Documentation of EMS for Biosolids – EMS Element 1.0 – Rev 08– Aug 5, 2013.
- EMS Documentation and Document Control – EMS Element 12.0 – Rev 09 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- EMS Manual Issue Log – Oct 06, 2014.
- EMS Manual Cross-Reference Table – February 17, 2014.
- EMS Element Procedure change history logs for each element.
- Table - TPDES Permit – Required Report Summary – EMS Element 12.0 dated October 6, 2014.
- Figure 1 Pretreatment Data Management System – October 6, 2014.

- Table – Level 4 Documentation Master List – EMS Element 12.0 dated Oct 06, 2014.

Element 13. Monitoring and Measurement

- Monitoring and Measurement – EMS Element 13.0 – Rev 10 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Interviews with Jerry Pressley, Perry Williams and Anna Pena
- Interviews with biosolids contractor personnel; Carlos Andrade – Operations Manager, Mike Ferguson – Belt Press Operator, Douglas Gomez – Vehicle Operator, and Jose Valdez – Land Application Supervisor.
- Reviewed SOP Master Files Binder and SOP Binders (CCP Manuals)
- Field visit to land application site in Hill County at Todd Kimbrell farming operation (HLTK-1)
- Renda Environmental EMS Standard Operating Procedure Manual.
- Monitoring and Measurement Appendix 13a – Field Observation Report, Close-out Site Visit Form and Odor Monitoring – Field Data Sheet.
- Monitoring and Measurement Appendix 13b – Biosolids Percent Solids Data Sheet and Daily Process Control Worksheets.

Element 14. Nonconformances: Preventive and Corrective Action

- Nonconformance: Preventive & Corrective Action – EMS Element 14.0 – Rev 08 – Oct 06, 2014.
- Corrective Action Notice (CAN) Form – October 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Corrective Action Notice (CAN) – Master List for non-conformance issues identified in 2013 interim biosolids EMS audit.
- Completed CAN forms for 2013 interim biosolids EMS audit including close out signatures.
- National Biosolids Partnership Environmental Management System (EMS) Internal Audit Report – September 15, 2014.

Element 15. Biosolids Management Program Report

- Biosolids Program & EMS Performance Report – EMS Element 15.0 – Rev 07 – Aug 5, 2013.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.
- Biosolids Management Program & Environmental Management System (EMS) Annual Performance Report 2013 – 2014.

Element 16. Internal BMP Audit

- Internal EMS Audit – EMS Element 16.0 – Rev 12 – Oct 06, 2014.
- Interviews with Steven Nutter, Magan Lersch, and Ben Davis.

- National Biosolids Partnership Environmental Management System (EMS) Internal Audit Report – September 15, 2014.

Element 17. Management Review

- Periodic Management Review of Performance – EMS Element 17.0 – Rev 07 – Aug 5, 2013.
- EMS Planning Schedule (By Calendar Year) – November 4, 2013.
- Biosolids Annual Management Review of EMS Performance – Reporting Period: August 1, 2013 – July 31, 2014. (Prepared October 06, 2014)
- Biosolids Annual EMS Management Review – Agenda – Oct 06, 2014 (for reporting period August 1, 2013 – July 31, 2014.)
- Annual EMS Management Meeting – attendance sign-in sheet.
- Biosolids Annual EMS Management Review PowerPoint slide presentation – 2014.
- Interview with Sebastian “Buster” Fichera.
- Interviews with Steven Nutter, Magan Lersch, Ben Davis, Jerry Pressley and Anna Pena.