

Biosolids Program & Environmental Management System (EMS) Annual Performance Report

City of Fort Worth Water Department
Plant Operations Division

Table of Contents

INTRODUCTION 3
 Annual Performance Report (APR) 3
ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) 3
 National Biosolids Partnership (NBP) 3
PROGRAM SUMMARY 4
 Beneficial Reuse and Disposal 4
 Goals and Objectives 4
 Audits 5
 Public Outreach 5
 Pretreatment Services 5
ACCOMPLISHMENTS FOR 2020-2021 REPORTING YEAR 6
BIOSOLIDS MANAGEMENT PROGRAM 7
 Biosolids Production 7
 Beneficial Reuse Options and Management Practices 8
 Contractor Performance 8
 Monitoring and Measurement 8
EMS Activities and Timeline 11
 Goals and Objectives 11
 Corrective Action Notices (CANs) 11
LEGAL REQUIREMENTS 11
SPILLS, EMERGENCY ACTIONS, AND RESPONSE 11
PUBLIC OUTREACH AND PARTICIPATION PROGRAM 11
FUTURE PLANS/ADVANCES IN BIOSOLIDS TECHNOLOGY 12
CONTACT INFORMATION 12
APPENDIX A: CORRECTIVE ACTION NOTICES 2020-2021 13
APPENDIX B: CURRENT GOALS AND OBJECTIVES 16

INTRODUCTION

The City of Fort Worth’s biosolids program is a public/private partnership with a biosolids contractor who processes, dewater, transports, and beneficially land applies biosolids from the Village Creek Water Reclamation Facility (VCWRF). Synagro Of Texas-CDR, Inc. is the current biosolids contractor that has provided service to the City of Fort Worth since April 01, 2020.

Annual Performance Report (APR)

The APR summarizes the performance of Fort Worth’s Biosolids Management Program (BMP) relative to established policies, procedures, goals, objectives, and legal requirements. The report includes an evaluation of operational effectiveness, monitoring and measurement data, contractor activities, voluntary adopted requirements, public outreach efforts, advances in biosolids technology, emergency response, and internal/third-party audit findings. The APR is distributed annually to the EMS Management Team and posted on the City’s website for public review.

ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

The EMS is a systematic approach that helps the City to produce desired outcomes in the four key areas of environmental performance, regulatory compliance, quality biosolids management practices and relations with interested parties. The National Biosolids Partnership (NBP) establishes “Good Practice” standards and guidelines that the City must commit to follow and demonstrate by setting goals and objectives for continual improvement in all aspects of the BMP. The EMS contains 17 elements for policy, planning, implementation, assessment and management review that set the quality standards for each desired outcome as follows:

- Identification, evaluation and successful completion of SMART goals and objectives
- Identification and proper management of critical control points and associated operational controls
- Identification, interpretation and implementation of legal and other requirements
- Creation of meaningful opportunities for public participation
- Implementation of corrective and preventative measures in response to nonconformance
- Implementation of procedures to monitor and measure the effectiveness of the program
- Implementation of appropriate training and communication procedures
- Evaluation of the EMS Biosolids Program through routine internal and external audits
- Commitment and involvement of the EMS Management Team to review and revise the program as needed.

National Biosolids Partnership (NBP)

The National Biosolids Partnership is a voluntary partnership between the National Association of Clean Water Agencies (NACWA) and Water Environment Federation (WEF). NBP is committed to developing and advancing environmentally sound and sustainable biosolids best management practices through comprehensive management systems. The mission of the NBP is to promote the understanding and adoption of effective practices in biosolids management through the following venues:

- Education and training;
- Technical assistance;
- An information clearinghouse; and
- An EMS-based third-party certification program for biosolids management systems.



Figure 1. The City of Fort Worth's EMS has been certified at the highest Platinum Level by the NBP since July 2005.

PROGRAM SUMMARY

During the 2020-2021 reporting year, the Biosolids Program utilized approximately 36% of Village Creek's overall budget.

Beneficial Reuse and Disposal

During the past reporting year (August 1, 2020-July 31, 2021), the City of Fort Worth's Biosolids Program beneficially reused and recycled 99.89% (excluding lime) of its Class AB biosolids and landfilled 0.11%.

Goals and Objectives

Every quarter, biosolids goals and objectives are reviewed and updated. During the reporting year, the biosolids program has focused on achieving nine (9) goals. Two of these goals to increase the percent solids of biosolids and increase biosolids storage capacity, were completed and removed from the list. The remaining seven (7) goals and objectives include the following:

- **Improve Sludge Thickening - Increase digested feed sludge to 5% as a daily average**
This goal was designed to identify a more efficient thickening technology (rotary drum thickeners) to replace the Dissolved Air Flotation Thickeners (DAFTs). In April 2017, the scope of this goal changed to include improvements to the Gravity Belt Thickeners (GBTs) and replacement of the Gravity Thickeners. City Council awarded contract for construction activities on June 23, 2020. Construction started on August 3, 2020 and is projected to be substantially completed by February 2022, with additional time needed for punch-list items.
- **Grit Improvement Project- Reduce the number of work hours associated with unplanned corrective grit-related repairs by 25%. This will be based on an annual average reduction in total labor hours dedicated to such repairs.**
This project is a critical improvement to remove 95% of 105-micron (or larger) grit particles from the influent flow at VCWRF to reduce equipment repairs and improve clarifier performance. The project also includes a low-lift influent station to route flow from the south around to the headworks building. Baseline data for work orders was started in January 2020 and will be compiled until construction is completed on the new grit facility. Once the grit facility is operational, one year of data will then be collected to compare its performance versus the baseline conditions. Labor hours will be tracked using the City's computerized maintenance management system (Maximo) with an expected completion date of September 1, 2023. City council awarded contract for the new facility on June 23, 2020. Construction began August 3, 2020 and is projected to be completed by September 2022.
- **Address Public Concerns Regarding Biosolids – Increase the input of concerns by 20%**
The City has set a goal for the biosolids program of increasing public feedback by 20%. However, this goal is proving difficult to achieve due to restrictions associated with the COVID-19. This is primarily due to the fact that public tours of the Village Creek Water Reclamation Facility are on hold due to safety concerns associated with the pandemic. The City is evaluating other methods, including electronic media, to improve its outreach activities.
- **Design, Build, Operate & Maintain A New Biosolids Processing Facility - Transition from Class AB to Class A biosolids**
The Biosolids Master Plan was finished in January 2019. This document called for the construction of a new biosolids processing facility to produce Class A biosolids via thermal drying. Design of the new facility began in January 2020 and reached the 90% design phase as of September 2020. Construction work commenced on July 14, 2020 and design work was 100% completed on December 20, 2020. The new facility is scheduled to be operational by July 2022.
- **Asset Management Program-Existing Biosolids Facility -Implement a computerized maintenance management system for 100% of the existing & new biosolids infrastructure.**
The asset management program (Maximo) that is currently used by the City of Fort Worth at the VCWRF, will also be used for the existing biosolids infrastructure at the dewatering facility (belt press building, storage tanks, pump station, etc.). Implementation will include the issuance of work orders for predictive, preventative, and corrective maintenance activities. Existing assets and hierarchy were entered into Maximo by June 25, 2021. Training for Biosolids Contractor employees was completed June 15, 2021. Biosolids Contractor is currently working to enter asset properties into system.
- **Update Village Creek Standard Operating Procedures (SOPs) - Update, review and revise 100% of Village Creek SOPs.**
The SOPs at Village Creek need to be updated and signed by current staff. A new format for the SOPs was developed in September 2020 and the work is expected to be completed in October – November 2021. Safety SOPs should be completed by the January 2022.

- **Digester Improvement Project - Improve the digesters to increase the biogas production by 15% when compared to baseline data (FY2023).**

The project will include many improvements associated with the anaerobic digesters, including upgrades to the mixing systems and gas piping, replacement of the digester dome insulation and remediation of the heat loss issue for digester #2. Non-destructive testing of the domes is complete. Preferred alternatives for mixers and flares have been selected and improvements for the design phase have been identified. Evaluation of digester #2 is expected to be completed in Winter 2022. New scope items (such as the turbine gas compressors) have been added to the project, which is scheduled for completion in March 2024.

Audits

An internal audit was conducted on August 27-31, 2021 and no nonconformances were discovered. A third-party EMS external audit was held on October 20th through 22nd, 2020. The auditor found no major nonconformities, 1 minor nonconformance, 6 opportunities for improvement and 1 positive commendation. Copies of these reports can be found on the City's biosolids EMS webpage.

Public Outreach

During the 2020-2021 reporting year, public outreach efforts for the the Fort Worth Biosolids Program continued to target landowners and interested parties near land application sites. Infotubes with the City's Frequently Asked Question (FAQs) sheets were posted on notification signs at site entrances from May 7th 2021 to August 24th 2021. Overall for the 2020-2021 reporting period 61% of the City's FAQ sheets were taken from the infotubes by the general public. It is important to note that the Biosolids Contractor is also providing their own FAQ sheets to the general public.

From August 2020 to July 2021, tours at VCWRF and Biosolids specific presentations were suspended as a result of the COVID pandemic. These outreach activities are expected to resume at a future date, when appropriate.

Pretreatment Services

Every November, the Pretreatment Services Department recognizes those industrial facilities that have achieved compliance excellence and performance by complying with regulatory and permit requirements. In November 2020, 103 of 140 industries were 100% compliant. Of these industries, 9 facilities received a Stewardship award (11 or more years of 100% compliance), 49 received a Partnership award (3-10 years of 100% compliance), 15 received an Associate award (2 years of 100 % compliance) and 30 received a Star award (1 year of 100% compliance). Five industries received Pollution Prevention awards for their efforts in using materials, processes, or practices that reduce or eliminate wastes and one facility received Industry of the year award for a Fort Worth industry that has demonstrated 5 or more years of consistent compliance and significant pollution prevention activities.

Pretreatment Services staff manage the Fats, Oil, and Grease (FOG) Abatement Program and continue to successfully implement and enforce requirements for Food Services Establishments (FSEs) through plan review, maintenance records, on-site inspections and education. Information on proper grease disposal is also provided to the general public on the City website and with additional educational materials like brochures, magnets and door hangers. Figures 2 and 3 illustrate the decline in sanitary sewer overflows the City has experienced through public education efforts and proper management of commercial grease traps to prevent blockages in the wastewater collection system.

Pretreatment Services personnel also conduct a comprehensive monitoring program of the wastewater collection system, as well as the influent and effluent from the Village Creek Water Reclamation Facility. Any abnormal data from the monthly monitoring at VCWRF is initially analyzed by comparing the sample results to data obtained from the system-wide sampling. If the information indicates that contamination occurred, a follow-up plan can be implemented to identify the source of the contamination. Sewer maps and other tools are used to identify locations for further investigation, inspection and facility monitoring.

The Pretreatment Services Department works closely with the Biosolids Management Division to permit commercial and industrial discharges into the wastewater system and to enforce federal, state and local water quality limits. Compliance with regulatory standards is critical to protect wastewater infrastructure and the health of employees at the Village Creek Water

Reclamation Facility (VCWRF). Pretreatment standards reduce conventional and toxic pollutant levels discharged by industries and other nondomestic wastewater sources into the municipal sewer system and the environment. These efforts ultimately protect public health and the environment by protecting the quality of biosolids and reclaimed water derived from treated wastewater for beneficial reuse.

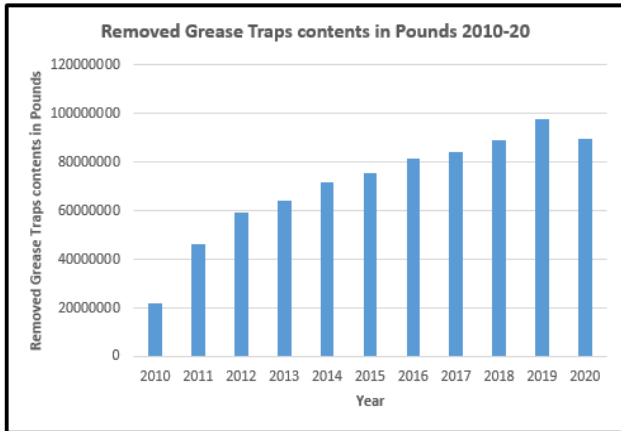


Figure 2. The amount of grease removed from grease traps has been steadily increasing since 2010.

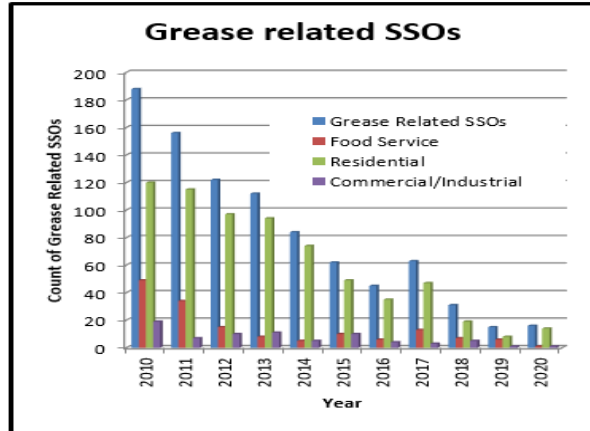


Figure 3. The number of Grease Related Sanitary Sewer Overflows (SSOs) has dramatically decreased since 2010.

ACCOMPLISHMENTS FOR 2020-2021 REPORTING YEAR

- Since the last reporting year, the Biosolids Program has made progress toward achieving its EMS goals and objectives. A copy of the current goals and objectives is included in Appendix B.
- Design of the new Class A thermal drying facility was completed by December 2020.
- Construction of the dryer facility continues at a rapid pace and is nearing 80% completion. The building's internal structure and outer shell is complete. Most major systems and subsystems are in place. Work continues on electrical, HVAC, and fire sprinklers systems. Design of the natural gas pipeline is complete and should be installed before the end of the calendar year.
- The 5 million gallon storage tank project completed as of May 2021, along with the new ferric chloride feed station.

BIOSOLIDS MANAGEMENT PROGRAM

Annual Biosolids Reporting Period	August 1st, 2020 to July 31st, 2021
Registration/Permit Number:	TPDES #10494-013 TCEQ--#20009 (Synagro of Texas-CDR, Inc.) TXDOT--#271617 (Synagro of Texas-CDR, Inc.)
Transporter No.:	TCEQ--# 20009 (GIC for Synagro of Texas-CDR, Inc.) TXDOT-- # 3425884 (GIC)
Type of biosolids produced:	Class AB (TCEQ)
Amount of biosolids beneficially reused/recycled:	22,666 dry tons (without lime)
Amount of biosolids beneficially reused/recycled:	23,030 dry metric tonnes (without lime)
Percentage of biosolids beneficially reused/recycled:	99.89%

Biosolids Production

The City of Fort Worth produces biosolids at the City's dewatering facility located north VCWRF. During 2020-2021, 22,666 dry tons (without lime) of biosolids were produced. Due to inclement weather and odor concerns, 27 dry tons were landfilled.

The biosolids are anaerobically digested and dewatered by belt filter press to produce a cake product that is 16% to 18% solids or by centrifuges to produce a drier cake that is 21-24% solids. After dewatering is complete, lime is added to comply with pathogen requirements in the Texas Pollutant Discharge Elimination System (TPDES) permit. The biosolids are then land applied by the Biosolids Contractor.

Table 1. Number of Biosolids Program landowners per county plus site acreage

Landowner Participation by County – Synagro Of Texas-CDR, Inc.				
Counties	Landowners	Noticed Sites	Noticed Acres	Percent of Total Acreage
Bosque	2	2	4100	15.6
Denton	2	2	975	3.7
Hill	16	47	14,694	55.8
Hood	2	3	2,265	8.6
Johnson	3	3	1,451	5.5
Kaufman	2	2	2,650	10.1
Wise	1	1	200	0.8
TOTAL	28	60	26,335	100%

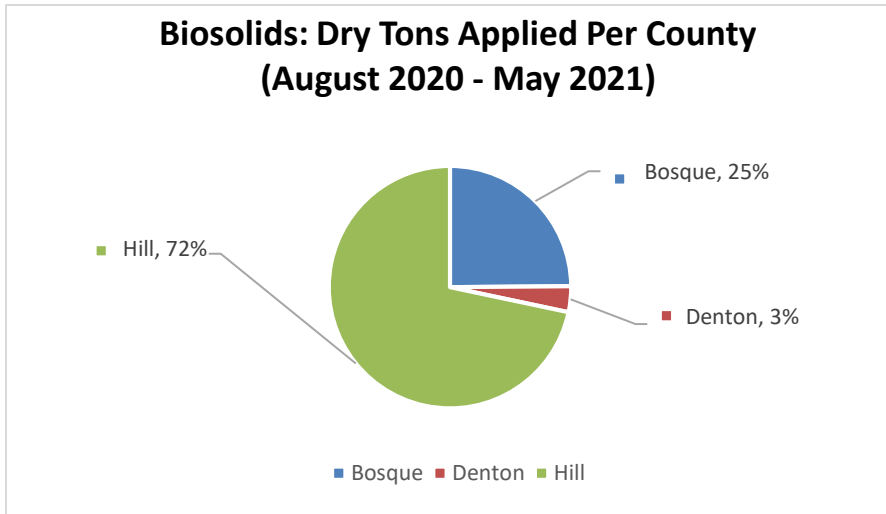


Figure 4. Percent of dry tons applied in each county during August 2020-July 2021

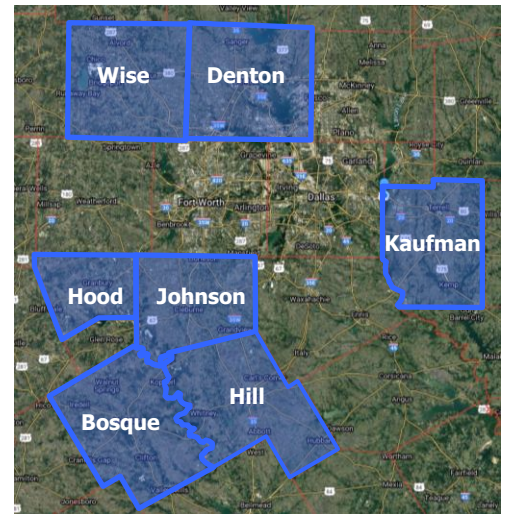


Figure 5. Counties in the City’s Biosolids Program that can receive land application.

Beneficial Reuse Options and Management Practices

Biosolids produced at VCWRF are properly processed, monitored, and land applied at a calculated agronomic rate to thousands of acres of farm and pasture land in neighboring counties (Refer to Figure 5). Biosolids are a valuable soil amendment that add beneficial nutrients, organic matter and moisture to crops and grasses. For the 2020-2021 reporting year, eleven sites in Bosque, Denton and Hill counties received land application of biosolids (Refer to Figure 4).

Contractor Performance

Biosolids operations in Fort Worth are contracted to Synagro Of Texas-CDR, Inc., with oversight by City of Fort Worth staff. The Biosolids Contractor is responsible for the following program requirements:

- Performing operation and maintenance activities at the biosolids facility, as well as transporting biosolids to the land application sites;
- Implementing the land application program to beneficially reuse the biosolids produced at VCWRF;
- Monitoring odor daily at land application sites & the biosolids processing facility;
- Performing necessary monitoring and measurement activities for compliance with legal and other requirements;
- Correcting nonconformance issues and responding to public complaints and requests for information;
- Providing appropriate EMS, safety and operation training for staff and subcontractors;
- Implementing and maintaining the proper operational control procedures, SOPs and management controls, including the Maximo computerized maintenance system for all critical control points;
- Notifying officials and interested parties of upcoming audits and other events as required; and,
- Fulfilling the requirements outlined in the service contract with the City of Fort Worth.

City Oversight/Inspections

City personnel perform daily visits and inspections to the dewatering facility and land application sites to ensure that the contractor is following best management practices for biosolids dewatering, transportation, land application and other requirements, as needed. From August 1, 2020 to July 31, 2021, city personnel performed 199 land application site visits.

When land application occurs, City personnel perform inspections to evaluate and record weather and site conditions, observe transport vehicle unloading/cleaning procedures, and verify contractor compliance with regulations, buffer zones, and posting requirements. City inspectors quantify odors and establish an historical record for each land application site using an instrument known as an olfactometer. When the Biosolids Contractor has finished applying biosolids at a site, a City inspector conducts a close-out visit to document the completion of land application activities and record any nonconformance issues.

Monitoring and Measurement

Under City contract, the Biosolids Contractor collects samples of biosolids from process areas and uses an independent certified laboratory to analyze the biosolids for fecal coliform, pathogens, metals, Polychlorinated Biphenyls (PCBs), Toxicity Characteristic Leaching Procedure (TCLP), pH, and percent solids. The Biosolids Contractor must comply with the regulatory requirements and sampling frequencies outlined in the TPDES permit for the VCWRF and summarized in Table 2.

During 2020-2021, all metal concentrations in monthly samples and PCBs in an annual sample, were significantly below ceiling concentration limits and pollutant concentrations as required by 40 CFR 503 and 30 TAC 312, for the use or disposal of sewage sludge (Refer to Table 3 below). In addition, two samples collected by the City and the Biosolids Contractor for Toxicity Characteristic Leaching Procedure (TCLP) analysis were also compliant with regulatory standards.

Table 2. Monitoring Requirements associated with the City's Biosolids Program

TPDES CLASS AB BIOSOLIDS MONITORING METHODS AND FREQUENCY	
Pathogen Control	30 TAC 312.82 (a) Alternative 4
	<ul style="list-style-type: none"> Fecal Coliform Density <1000 MPN* Enteric Virus Density <1 Plaque-forming unit per 4 gram total solids** Viable Helminth Ova Density <1 per 4 grams total solids**
Vector Attraction Reduction	30 TAC 312.83 (b) (1-8) Alternative 1 or 6
	<ul style="list-style-type: none"> Alternative 6: pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours
MONITORED ITEM	FREQUENCY
Fecal Coliform	One to Two (1-2) times per month
Pathogens	One to Two (1-2) times per month
Metals	Monthly
PCBs	Monthly (August 2020- July 2021) Or Annual
TCLP	Two (2) times per year Or Annual
pH	Operation Process-Daily; Regulatory Compliance- Weekly (if using Alternative 6 for Vector Attraction Reduction)
% Total Solids	Daily
* Most Probable Number	
** Dry Weight Basis	

During the 2020-2021 reporting period the Fort Worth Biosolids Program was compliant with the following TPDES monitoring requirements:

- Helminth Ova
- Metals
- Toxicity Characteristic Leaching Procedure (TCLP)
- Polychlorinated Biphenyl (PCB)
- Odor Log Monitoring Requirements
- Enteric Virus

Exception (Refer to Corrective Action Notices 2020-04):

* Fecal Coliform – On August 06, 2020 a biosolids sample exceeded the permitted limit of <1000 MPN/gram. The reported result was 3,045.1 MPN/gram and applied biosolids were managed with Class B site restrictions.

Table 3. VCWRF's permit required metal sampling results from August 2020 to July 2021.

METAL AND PCB CONCENTRATION (REPORTED IN MG/KG DRY WEIGHT BASIS)											
Year 2019-2020	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Pb mg/kg	Hg mg/kg	Mo mg/kg	Ni mg/kg	Se mg/kg	Zn mg/kg	PCB mg/kg
<i>NPDES Permit Limits (Table 1- Ceiling Concentration Limits)</i>	75	85	3000	4300	840	57	75	420	100	7500	n/a
<i>NPDES Permit Limits (Table 3- Pollutant Concentrations)</i>	41	39	1200	1500	300	17	***	420	36	2800	n/a
August	12.9	0.76	42.5	424	16.1	0.23	31.4	24.8	4.36	560	
September	13.7	ND	44.5	408	16.7	0.32	29.3	25.3	5.34	565	
October	17.6	ND	72.1	573	18.5	0.33	40.3	35.4	4.40	782	
November	21.8	ND	43.8	389	18.6	ND	29.3	27.7	6.61	526	
December	8.9	ND	35.0	352	14.1	0.20	25.1	24.2	3.07	474	
January	7.7	0.66	35.1	354	14.6	0.47	23.7	20.8	4.05	459	
February	6.1	ND	30.2	378	16.0	0.25	17.5	20.4	4.94	509	
March	6.4	ND	32.6	361	14.2	0.22	14.50	24.9	3.32	550	ND
April	6.9	0.75	49.8	378	15.7	0.24	16.0	20.8	5.17	527	
May	5.6	0.57	37.8	409	14.7	0.16	12.3	29.1	2.29	437	
June	6.5	ND	31.7	348	17.3	0.23	11.8	24.9	5.260	498	
July	13.3	1.80	54.1	553	26.2	0.26	18.9	40.2	7.16	852	
Yearly Average Concentration	10.6	0.91	42.4	411	16.9	0.26	22.5	26.5	4.67	562	ND
Highest Monthly Concentration	21.8	1.80	72.1	573	26.2	0.47	40.3	40.2	7.16	852	N/A
***No limit established by federal regulations											
Pathogen Requirement Achieved: Class AB			Pathogen Reduction Alternative Used: Alternative 4				Vector Attraction Reduction Alternative Used: Alternative 6				

EMS Activities and Timeline

The EMS manual was updated periodically throughout the reporting year. The following table indicates additional biosolids EMS activities conducted during the past year.

Table 4. EMS activities and associated dates.

2020-2021 EMS Activities	Date
Goals and Objectives Updates	Quarterly (September, December, March, June)
Corrective Action Notices And Corrective Action Plan Review	Quarterly (September, December, March, June)
EMS Internal Audit	August 27-31, 2021
EMS Performance Report	September 30, 2021
EMS Management Review	October 4, 2021
EMS External Third-Party Audit	October 12-15, 2021

Goals and Objectives

The City has established goals and objectives to help improve selected biosolids management activities. These goals are updated every quarter in order to track their progress and to establish new goals and objectives when appropriate. The current list of goals and objectives (September 30, 2021) is included in Appendix B of this report and summarized on pages 4 and 5.

Corrective Action Notices (CANs)

As defined in EMS Element 14, Corrective Actions are specific actions and steps taken to resolve issues of nonconformance (deviation) from procedures, environmental policies or other requirements, and to mitigate any residual impacts to the environment. A Corrective Action Notice is used to document all identified nonconformance, track progress towards completion and implement mechanisms to prevent recurrence. All CANs for the 2020-2021 year have been summarized in Appendix A.

LEGAL REQUIREMENTS

VCWRF regularly reviews federal, state, and local regulations and other requirements that may affect biosolids management activities. No major regulatory changes occurred during the reporting period.

SPILLS, EMERGENCY ACTIONS, AND RESPONSE

No spills of note occurred during the 2020-2021 reporting year.

PUBLIC OUTREACH AND PARTICIPATION PROGRAM

Public outreach activities have been impacted by the ongoing pandemic. Tours of the Village Creek Water Reclamation Facility, which is the primary method for soliciting input from the general public, were on hold due to concerns associated with COVID-19. Most public events were cancelled or were not attended by City staff – again due to the pandemic. During this timeframe the biosolids program has continued to solicit input through QR codes at land application sites. Phone numbers for City and Contractor personnel are provided on land application signage to submit comments or complaints. Brochures are distributed via InfoTubes mounted on land application signs.

Fort Worth’s new rotary drum dryer was delivered in May 2021. The drum will allow the Biosolids Program to produce Class A biosolids, which will have increased opportunities for marketing and distribution (among other benefits). The drum delivery was covered by local media, and a video of the event was uploaded to YouTube: <https://www.youtube.com/watch?v=QN-bShC4W7s>

FUTURE PLANS/ADVANCES IN BIOSOLIDS TECHNOLOGY

New Biosolids Processing Facility: The Biosolids Master Plan from January 2019, recommended the construction of a new processing facility that utilizes thermal drying to produce Class A biosolids. The City is moving aggressively to implement this proposal from the Master Plan. On December 30, 2019 a contract was awarded to Synagro to design and construct a thermal dryer facility to produce Class A biosolids. Synagro must construct the new dryer facility within 30 months of the effective date of the contract. Synagro will then operate and maintain the dryer facility for the initial 10 year term of the contract, with another 10 year renewal option. Design work on the new facility began in January 2020 and construction was underway as of July 2020. It is anticipated that construction will be completed by summer of 2022.

CONTACT INFORMATION

If you have comments on this report or any other biosolids related items please call or email.

Village Creek Water Reclamation Facility	817-392-4960
Biosolids EMS Manager	817-392-4965
Biosolids Program Email	biosolids@fortworthtexas.gov

For additional information about the City of Fort Worth Biosolids Beneficial Reuse/Recycling program and the EMS, visit our website: <http://fortworthtexas.gov/water/biosolids/>

For additional biosolids facts, regulatory requirements, and information on the National Biosolids Partnership (NBP) Program, visit the website: <http://www.biosolids.org>

APPENDIX A: CORRECTIVE ACTION NOTICES 2019-2020

CORRECTIVE ACTION NOTICES AUGUST 1, 2020-JULY 31, 2021					
CAN #	Date	Non-Conformance Issue	Scheduled Completion Date	Actual Completion Date	Close-Out Date
2020-04	09/09/20	Requirement 13.1: The City also requires its contractors to monitor biosolids regulatory operations, processes and activities in addition to those specified by the permit in the contract documents. On August 6, 2020 a biosolids sample exceeded the permitted limit for fecal coliform.	09/15/20	10/22/20	10/22/20
2020-05	09/11/20	Requirement 13.1: The City also requires its contractors to monitor biosolids regulatory operations, processes and activities in addition to those specified by the permit in the contract documents. On May 20, 2020 a biosolids sample exceeded the permitted limit for enteric virus; however, the test result is believed to have been caused by laboratory error. The laboratory is no longer utilized for compliance sampling. This sample result was collected and reported last year for 2019-2020, but is listed here again by documentation date.	09/11/20	09/11/20	09/11/20
2020-06	10/01/20	Requirement 12.2: Establish and maintain document control procedures and practices to ensure that its biosolids management program documentation and documents are kept up to date through periodic reviews and revisions; and are approved by authorized personnel. On October 01, 2020 the internal auditor found SOPs that exceeded the maximum 3 year mandatory review period and/or were signed by former employees.	11/30/21	TBD	TBD
2020-07	10/01/20	Requirement 14.5: Establish formal corrective action plans to address findings of internal BMP audits and audits conducted by third parties. Document corrective action plans and describe what actions will be taken to address the audit findings, the individuals responsible, the estimated completion date, and required resources to develop and implement corrective and preventive action. Fort Worth's EMS requires quarterly updates to all open corrective actions. On October 01, 2020 the internal auditor noted that progress made to complete emergency preparedness and response procedures had not been properly documented.	10/01/20	10/01/20	10/01/20
2020-08	10/01/20	Requirement 5.6: Update goals and objectives on a regular basis. On October 01, 2020 the internal auditor found the 2 nd Quarter 2020 update for the goals and objectives table did not document the status of public outreach activities.	10/01/20	10/01/20	10/01/20

CORRECTIVE ACTION NOTICES AUGUST 1, 2020-JULY 31, 2021 (Continued)					
CAN #	Date	Non-Conformance Issue	Scheduled Completion Date	Actual Completion Date	Close-Out Date
2021-01	02/01/21	Requirement 10.1: Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts. On January 29, 2021 a City of Fort Worth inspector observed a contractor vehicle hauling biosolids to an application site without the necessary cover in place over the load.	02/08/21	02/04/21	02/04/21
2021-02	02/02/21	Requirement 10.1: Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts. On April 23, 2021 a City of Fort Worth inspector observed a contractor vehicle hauling biosolids to an application site without the necessary cover in place over the load.	02/08/21	02/04/21	02/04/21
2021-03	06-15-21	Requirement 10.1: Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts. On June 15, 2021 a City of Fort Worth inspector discovered that the land application site TX-HI-15 had been flagged incorrectly and biosolids were applied within the 750 foot prohibited buffer zone of a nearby receptor (occupied residence).	06/17/21	06/18/21	06/21/21

APPENDIX B: CURRENT GOALS AND OBJECTIVES

GOAL: Improve sludge thickening

Objective: Increase digested feed sludge to 5% as a daily average

ACTION PLAN:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
VCWRF Thickening Project				
1. Hire Consultant For Design Work	Ana Peña, Engineering Mgr.	June 15, 2015	Completed (June 15, 2015)	<ul style="list-style-type: none"> Environmental Performance Improve Biosolids Management Practices
2. Finalize Scope of Work	Ana Peña, Engineering Mgr.	July 15, 2015	Completed (July 15, 2015)	
3. Finish conceptual design	Russell Redder, PE	June 30, 2018	Completed (August 31, 2018)	
4. Final design phase (100%)	Maria Wang, PE	January 31, 2020	Completed (March 20, 2020)	
5. Project out to bid	Maria Wang, PE	April 30, 2020	Completed (March 26, 2020)	
6. Begin construction	Farida Goderya, PE	November 1, 2020	Completed (August 3, 2020)	
7. Finish construction	Farida Goderya, PE	September 1, 2022	Not complete	

Notes/Comments:

The purpose is to look into a new thickening technology that will replace the DAFTs.

- **March 2016:** No changes.
- **June 2016:** Conceptual design date moved forward as it has not been completed.
- **September 2016:** Conceptual design date moved forward as it has not been completed.
- **December 2016:** A pilot project has been completed and the City is currently waiting for recommendations for which thickening technology would be best to implement.
- **March 2017:** Scope of the project changed after the initial pilot study. The conceptual design changed as a result and therefore VCWRF is still awaiting a finished conceptual design.
- **June 2017:** In April 2017 the scope of the project changed to include improvements to the GBTs and replacement of the gravity thickeners. The project is still in the conceptual design phase and VC is waiting for the PER (preliminary engineering report).
- **September 2017:** The contract for the design phase was completed in September 2017 and includes finalizing the PER.
- **December 2017:** The consultant has moved into the final design phase and the estimated completion is December 2018. There are no other updates at this time.
- **March 2018:** The conceptual design phase was delayed due to the consultant having to recalculate sludge flows so as not to over/under design the dewatering equipment (GBTs, rotary drum thickeners).
- **June 2018:** Preliminary Engineering Report (PER) is expected by the end of the month.
- **September 2018:** A workshop was held on September 11, 2018, with Freese & Nichols to settle design issues and discuss a schedule to move the project forward.
- **December 2018:** Design issues have caused delays and the project is currently between the 30%-60% design phase.
- **March 2019:** Design phase is at 30% and comments have not yet been submitted.
- **June 2019:** The project is at 60% design review and the City relayed comments to Freese & Nichols on May 28th. Freese & Nichols is now working toward the 90% design review phase.
- **Sept 2019:** Project is nearing 90% design phase completion, and expected to reach 100% by December, 2019..
- **Dec 2019:** Project is expected to reach 100% design phase completion by January, 2020.
- **March 2020:** Project out to bid and construction should begin in July 2020.
- **June 2020:** City council awarded contract for construction activities on June 23, 2020. Construction is scheduled to start by late Fall of 2020 and is projected to be completed by Winter 2022.
- **September 2020:** Construction started on August 3, 2020 and is projected to be completed by August 2022. The crews are currently demolishing parts of the existing building to prepare for the renovation.
- **December 2020:** Building Demolition 99% Complete; Crew are excavating existing lines to prepare for tie-in of 24" Return Activated Sludge (RAS) line. Loading Docks are under construction on the west side of the building. Containment walls for polymer tanks have been poured. Contractor preparing to replace the roof and remove the two existing gantry cranes from the building.
- **March 2021:** Water and Sludge Line Installation and Rerouting For The Project Is Underway ; The Electrical Pad Has Been Installed On North Side Of The Building; The Containment Area For The Polymer Tanks Is Complete, Contractor Waiting For Coating; Roof Removed, Beams Will Be Painted And Sheet Metal Installed; Frame For Overhead Doors Complete; Loading Dock In Progress; Basement Area Cleared And Crews Finishing Cleaning; New Stainless Steel Aeration Manifold Installed In The North WAS Tank.
- **June 2021:** Contractor Is Framing A New Slab For the Gravity Belt Thickeners (GBT). Pumps And Safety Ladders Are In Place Around The Polymer Tanks. The Ceiling Panels Are Complete. The Roof, New Windows, Sheet Rock, Gas -Powered HVAC System, And North Stairway Will Be Installed Soon. The Contractor Will Demo The West Wall To Install Double Doors To The Loading Dock. The Only Hatch Access To The Basement Is In The North Section Of The Building. Two Banks Of Nine Pumps Each, Will Be Added And Connected To The Line From The Blend Tank In The Basement. The Blend Tank Has Been Epoxy-Coated. The Gas Line At The SE Corner Of The Building Has Been Relocated. Three New Pumps And Associated Piping Are Being Added To Convey The Primary Sludge In The Pipe Gallery. The Projected Date For Substantial Completion Is December 2021, with additional time needed for punchlist items.

- September 2021:** Contractor has installed the ventilation hood over the GBT area. Water lines and manifold for polymer mixing are installed, Nine Rotary Drum Thickeners (RDTs) have been installed. The blend tank has been cleaned and repaired. The ceiling is in place with heavy duty trusses to strengthen the roof. All installed pipes have been pressure-tested. A 24" WAS line is being installed to convey backwash water to the head of the plant. Engineers are modifying the plans for the pipe bridge over the roadway. The projected date for substantial completion is January-February 2022 (Equipment and concrete delivery delays have hindered the project). Pumps should arrive in October and the DC Voltage Transformer (DVT) by the end of September. The transformer pad is set-up and ready for concrete. The electrical building to supply power for the main building is installed. A separate pad will be constructed for the air blowers, which are the last major pieces of equipment to be installed.

GOAL: Grit Improvement Project

Objective: Reduce the number of work hours associated with unplanned corrective grit related repairs by 25%. This will be based on an annual average reduction in total labor hours dedicated to such repairs.

ACTION PLAN:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Grit Removal Project				
1. Consultant Hired for Design Work	Ana Pena, PE	May 2, 2017	Completed (May 2, 2017)	<ul style="list-style-type: none"> Environmental Performance Improve Biosolids Management Practices
2. Complete Hydraulic Modeling	Maria Wang, PE	October 30, 2019	Completed (October 2019)	
3. Complete 90% Design	Maria Wang, PE	November 22, 2019	Completed (November 04, 2019)	
4. Complete 100 % Design	Maria Wang, PE	Feb 28, 2020	Completed (February 26, 2020)	
5. Project out to bid	Maria Wang, PE	May 1, 2020	Completed (February 27, 2020)	
6. Begin Construction	Maria Wang, PE	June 1, 2020	Completed (August 3, 2020)	
7. Finish Construction	Farida Godeerya, PE	August, 2022	Not Complete	
8. One Year Evaluation Period to Determine Effectiveness (reduction in work hours associated with grit related work orders).	Prasad Vattakunnel	September 1, 2022	Not Complete	

Notes/Comments:

- June 2019:** The purpose of this project is to improve the influent grit removal process at Village Creek. The improvements are designed to remove 95% of 105-micron particles or larger. This will reduce grit repair related activities throughout Village Creek and improve clarifier performance. The project also includes a low-lift influent lift station to route flow from the south around to the headworks building. Note: Baseline work order data is being compiled and will be included with the next update.
- Sept 2019:** Hydraulic modeling is being finalized. Project should reach 90% completion by November 2019.
- Dec. 2019:** Baseline data for work orders will be established starting in January 2020 and will be compiled until construction is completed on the new grit facility. Once the grit facility is operational, two years of data will then be collected to compare its performance versus the baseline conditions. Labor hours will be tracked using the City's computerized maintenance management system (Maximo). Project expected to reach 100% design phase completion by January 2020.
- March 2020:** Project out to bid and construction should begin in June 2020.
- June 2020:** City Council awarded contract for construction activities on May 19, 2020. Construction is scheduled to start by Fall of 2020 and is projected to be completed by Spring 2023.
- September 2020:** Construction began on August 03, 2020 and is expected to finish in August 2022. The crews have begun excavation work to demolish the stairs connecting to the headworks and to explore for utilities.
- December 2020:** Electrical Conduit Installed North Of The Bar Screen Building; Contractor has drilled 50 ft. deep holes to extract, treat and discharge groundwater from the site to prepare for foundation construction.
- March 2021:** Contractor has excavated a 30 ft. deep hole surrounded by H-Piles with corrugated panel shoring to stabilize the site during construction. The excavation will be extended an additional 10 ft. to a final depth of 40 feet below the ground surface for foundation construction. Eight groundwater pumps are currently dewatering the area. The contractor is monitoring for any shoring movement with a piano wire line, baseline surveyed bars attached to the H-Piles, and future concrete monuments. The two existing 12" sludge lines to the SOL have been bypassed around the excavation area.
- June 2021:** Contractor has poured the foundation and started construction of headcells 1-8. A 10" effluent line has been upgraded to a 14" line, which allowed the original footprint to remain the same, but pushed the construction up to the south shoring. The groundwater level is being maintained 13 feet below the installation with the groundwater wells and pumps. A 120 inch line will convey the treated wastewater from headcells 5-8 into the grit washer/classifier building. The next step is a hydro test and possible east side backfilling to begin building construction and expedite the schedule.
- September 2021:** The walls around headcells 1-8 are complete and the interior walls between headcells are under construction. Rebar is in place and construction crews are installing forms to prepare for concrete pouring. 120 inch diameter pipes for the connection loop between the effluent channels (headcells 1-4 and 5-8), and to connect to existing pipelines are on-site and ready for installation. Exterior, below-grade walls are being waterproofed to prevent groundwater infiltration.

GOAL: Address public concerns regarding biosolids				
<i>Objective: Identify four public concerns regarding biosolids</i>				
ACTION PLAN: A- COMPLETED	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Determine concerns based on feedback received from interested parties.				
1. Identify four (4) public/third party concerns	VCWRF Biosolids personnel	September 15, 2015	Complete (September 23, 2015)	<ul style="list-style-type: none"> Improve Public Relations
Concern #1= "The City of Fort Worth biosolids web pages are out of date." Concern #2= "The EPA and TCEQ standards are not strict enough." Concern #3= "Too much about biosolids are unknown." Concern #4= "Are there pharmaceuticals and personal care products (PPCPs) in biosolids?"				
2a. For each concern, either contact three (3) interested parties or conduct presentation with one (1) interested party*	VCWRF Biosolids personnel	September 30, 2017	Concern #1 -Complete (January 13, 2016) Concern #2 -Complete (March 30, 2017) Concern #3 -Complete (November 10, 2015) Concern #4 -Complete (November 10, 2015)	
2b. Create a biosolids specific tour presentation that addresses concerns 2-4.	VCWRF Biosolids personnel	September 30, 2017	Complete (March 30, 2017)	
ACTION PLAN: B- COMPLETED	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Improve ability to identify concerns via FAQs placed in information tubes at land application sites				
1. Contact the communication and outreach division to determine if mail outs (surveys, fact sheets, etc.) are feasible	VCWRF Biosolids personnel	July 31, 2015	Complete (June 12, 2015)	<ul style="list-style-type: none"> Improve Public Relations
2. Determine if the GIS department can acquire mailing addresses for residents around land sites	VCWRF Biosolids personnel	August 7, 2015	Complete (September 14, 2015)	
3. Develop information FAQ to be mailed to interested parties	VCWRF Biosolids personnel	October 15, 2015	Complete (December 21, 2015)	
4. Determine if addresses can be purchased to mail out FAQ	VCWRF Biosolids personnel	October 31, 2015	Complete (December 21, 2015)	
5. Determine if FAQ can be mailed to addresses surrounding land application sites	VCWRF Biosolids personnel	October 31, 2015	Complete (December 21, 2015)	
6. Begin placing FAQ in information tubes attached to site notification signs at land application site entrances	VCWRF Biosolids personnel	March 25, 2016	Complete (March 25, 2016)	
7. Evaluate the effectiveness of the information tubes by tracking the amount of FAQ taken	VCWRF Biosolids personnel	November 30, 2016	Complete (December 29, 2016)	
ACTION PLAN: C-COMPLETED	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Improve ability to identify concerns using the Water Department's social media accounts				
1. Contact the Communication and Outreach division to determine what content can be posted to the Water Department's social media accounts (Facebook & Twitter)	VCWRF Biosolids personnel	July 31, 2015	Complete (June 12, 2015)	<ul style="list-style-type: none"> Improve Public Relations
2. Begin posting biosolids information to Water Department's Facebook account (this will include any facts not listed on the FAQ sheet)	VCWRF Biosolids personnel	March 31, 2017	Complete (September 23, 2017)	

Biosolids Annual Performance Report 2020-2021

ACTION PLAN: D		RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Improve ability to address public concerns by updating Biosolids webpage					
1	Update grammar and typographical errors	VCWRF Biosolids personnel	August 31, 2015	Complete (August 17, 2015)	<ul style="list-style-type: none"> Improve Public Relations
1	Remove outdated information	VCWRF Biosolids personnel	August 31, 2015	Complete (September 17, 2015)	
1	Update tables on web pages	VCWRF Biosolids personnel	August 31, 2015	Complete (January 13, 2016)	
2	Add additional webpage for biosolids brochure	VCWRF Biosolids personnel	December 31, 2018	Complete (October 25, 2018)	
2	Add additional webpage for FAQ (developed from 2 nd action plan above)	VCWRF Biosolids personnel	December 31, 2018	Complete (October 25, 2018)	
ACTION PLAN: E -Completed		RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	<ul style="list-style-type: none"> Improve Public Relations
Improve ability to address or identify concerns via tour survey					
1.	Develop a survey to gauge the public's general knowledge/feelings about biosolids	VCWRF Biosolids personnel	December 31, 2015	Complete (October 29, 2015)	
2.	Preliminary implementation of a survey to determine what metrics can be obtained and used for quantifying public outreach responses	VCWRF Biosolids personnel	December 31, 2015	Complete (November 15, 2015)	
3.	Begin using survey on a regular basis during tours when possible	VCWRF Biosolids personnel	December 31, 2015	Complete (November 15, 2015)	
4.	Evaluate metrics and plot data to determine the effectiveness of survey and tour presentations	VCWRF Biosolids personnel	July 31, 2016	Complete (July 13, 2016)	
ACTION PLAN: G		RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	<ul style="list-style-type: none"> Improve Public Relations
Develop & implement public outreach activities to address public concerns on pharmaceuticals					
1.	Identify/develop public outreach events that biosolids staff could attend to distribute information on the benefits of pharmaceutical take back programs	Glory Walker, Biosolids Public Outreach Coordinator	June 1, 2022	Not Complete (See updates)	
2.	Attend four (4) public outreach events to distribute information on the benefits of pharmaceutical take back programs	Glory Walker, Biosolids Public Outreach Coordinator	June 1, 2022	Not Complete (see footnote)	
Action Plan A <ul style="list-style-type: none"> The FAQ addresses Concerns #1 and # 3 and will be available to the public via tours or information tubes attached to land application signs at site entrances. March 2016: Concern #1 has been completed, but the date is not known. When details can be acquired, the date will be inserted. July 2016: Concern #2 will be addressed in a presentation to be developed by the end of 2016 that will be specific to the biosolids program that can be used for special tour groups or interested parties. Concern #4 was addressed in a brochure that was completed in November but not printed until April 2016. September 2016: Concern #2 will be addressed in a presentation to be developed by the end of 2016 that will be specific to the biosolids program that can be used for special tour groups or interested parties. December 2016: The tour presentation that will address concern #2 (as well as #3 and #4) is still being developed. This presentation may be incorporated into the tours at Village Creek. March 2017: The four concerns identified have all been addressed in various public outreach materials. This action plan is complete. 					
Action Plan B <ul style="list-style-type: none"> The GIS department was contacted on August 7th regarding whether they were able to gather mailing addresses for residents surrounding land application sites. On September 14, 2015, the GIS department notified biosolids personnel that they were unable to acquire the addresses. On December 21, 2015, it was determined that mailing fact sheets is not a viable option for the biosolids program. Instead, fact sheets will be placed in an information tube and attached to the site notification signs located at site entrances. Placing a certain amount of fact sheets in the tubes and counting them during inspections will allow us to keep track of how many are taken introducing a potential metric with which to measure this outreach effort. 					

- March 2016: Information tubes were attached to site notification signs on 03-25-16 and a certain number of Frequently Asked Questions were placed inside. This information will be tracked to determine how effective the Information tubes are. Two more steps were added to reflect the change to this action plan.
- July 2016: Since Infotubes with FAQs have been posted on land application signs; approximately 34% of them have been taken. Sign/Infotube visibility, site entrance location, and number of FAQs taken per person are all variables that can affect the percent of FAQ taken at land application sites. Data collection for FAQs will be ongoing even after the action plan is completed.
- September 2016: No changes.
- **December 2016:** Since March 2016, 250 FAQs have been placed in infotubes at 19 land application sites. Of those 250 FAQs, 66 (or 26%) have been taken by citizens. As previously mentioned, sign/infotube visibility, site entrance location, and number of FAQs taken per person are all variables that can affect the percent of FAQ taken at land application sites. New infotubes were purchased in November 2016 that allows for higher placement on land application signs, which will increase their visibility and hopefully lead to more FAQs taken by citizens. **This action plan is complete.** However, data collection for FAQs will continue.

Action Plan C

- When lime is removed, and it can be confirmed that the biosolids odors have improved for the long term, information will begin being posted to the Water Department's Facebook page (where the application is occurring, general information about the biosolids program, etc.)
- March 2016: Completion date has been moved forward for social media postings.
- July 2016: Currently waiting for Chlorine dioxide to be approved for long-term biosolids treatment before posting information to social media regarding biosolids program and biosolids quality.
- September 2016: No changes.
- December 2016: The usage of chlorine dioxide is now in place and biosolids odors have improved. Posting biosolids information to the Water Department's social media accounts is still under evaluation.
- March 2017: The City of Fort Worth is in the process of finalizing its published materials criteria. Once this has been completed, biosolids personnel can revisit posting biosolids related material to the Water Department's social media accounts.
- June 2017: The position responsible for posting information to the Water Department's social media accounts is currently vacant. A public outreach meeting is scheduled for mid-July to discuss whether biosolids information will be able to be posted in the interim.
- September 2017: On September 21, 2017, staff from the Water Department's Communication and Outreach division drafted several biosolids social media posts. After obtaining our approval on the proposed social media posts, the Water Department began posting biosolids information to the department's Facebook account, along with #FWBiosolids on September 23, 2017. **This action plan is complete.**

Action Plan D

- Due to changes to the City's website policies the Water Department's Communication and Outreach division informed biosolids personnel that posting PDF documents to the City's web pages should be avoided as much as possible to comply with the Americans with Disabilities Act (ADA) requirements. Therefore, new information will be added as additional web pages if possible. See Action Plan: Add additional biosolids webpages.
March 2016: Completion dates have been moved forward due to complications in posting information to the City's website. Step 1c has been completed, but the date is not known. When details can be acquired, the date will be inserted.
- July 2016: Reference material that was used to develop facts not listed in the FAQ is being acquired to be made available to the public when new biosolids web pages can be posted.
- September 2016: No Changes.
- December 2016: Action Plan D-2c is being absorbed by Action Plan C-1. Public Outreach personnel within the Water Department will eventually use biosolids facts on the Water Department's social media accounts to extend biosolids information to the general public.
- March 2017: The City of Fort Worth is in the process of finalizing its published materials criteria. Once this has been completed, biosolids personnel can revisit posting biosolids related material to the ~~Water Department's social media accounts~~ City's website.
- June 2017: In April 2017, the City completed its new Branding and Style Guide for published materials. Biosolids materials will need to be rebranded to abide by the City's requirements before they are posted on the City's website.
- September 2017: The FAQ sheet and About Biosolids sheet were redesigned to comply with the City's Branding and Style Guide. On July 17 and 18, 2017, these outreach materials were emailed to the Water Department's Communication and Outreach division with the understanding that these items would be posted to the website as soon as possible. However, to date, these items have not been posted to the City's website.
- December 2017: Organizational changes to the Water Department have delayed this action item. An additional employee has been hired to work on public outreach efforts in the Water Department. When this individual has been familiarized with the wastewater treatment and biosolids processes, it is anticipated that he/she will be able to assist the Biosolids Program with public outreach efforts.
- March 2018: A new Communications Specialist with the Water Department met with the Biosolids Public Outreach Coordinator on March 14, 2018, to take a wastewater and dewatering plant tour to become familiar with the processes. The future of biosolids public outreach efforts was discussed during this time as well. In the near future, the Communications Specialist will visit a land application site to get more insight into the biosolids program. The intent is to start posting content on social media as soon as the Communications Specialist is familiar with the Biosolids Program.
- **June 2018:** The Communications Specialist in the Customer Care Division met with the Biosolids Public Outreach Coordinator on May 31, 2018, to visit a land application site and observe biosolids land application activities. With more familiarity with the Biosolids Program, the Communications Specialist has begun compiling content for the biosolids pages on the City's website.
- **September 2018:** While progress has been made in regards to public outreach efforts, availability of public outreach personnel has delayed the posting of additional biosolids information for the City's web pages.

Biosolids Annual Performance Report 2020-2021

Action Plan E

- It is anticipated that possible metrics stemming from the responses gathered from the survey will include: 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.
- March 2016: The completion date has been moved forward to accumulate more tour data.
- **July 2016:** Since surveys began being distributed during Village Creek tours in November, 103 comments have been elicited from tour participants. Past tours that did not include a biosolids survey, rarely garnered any feedback about biosolids. Surveys have been an effective tool at eliciting comments and questions, and different metrics have been gathered based on the survey responses. **This action plan is complete, but tour data will continue to be collected.** Additional notes are available upon request.

Action Plan G

- **March 2020** – This goal is on hold due to the COVID-19 pandemic. Attending large public meetings is currently prohibited due to Fort Worth’s social distancing protocols. For the next quarterly update the City will evaluate other public outreach avenues (electronic media) to see if it can implement a goal that meets SMART criteria.
- **June 2020** – Goal has not been updated
- **September 2020** – City is actively working to identify public/electronic events that could be utilized to distribute biosolids information. This is problematic due to the COVID-19 pandemic.
- **December 2020-** City is still actively looking for online public events that could be utilized during the pandemic. If no such events are identified then this goal will be moved to the MPL list with the next quarterly update.
- **March 2021** – City will coordinate with the Biosolids Contractor to develop a podcast touting the benefits of biosolids land application.
- **June 2021:** - No updates. City policy is still not allowing public tours of the plant. However, that may change in the upcoming months.
- **September 2021:** With the pandemic beginning to abate more public events are becoming available for public outreach opportunities. On September 18th, 2021 City staff manned a booth at the YardSmart event, which is attended by gardeners and other members of the general public. City staff distributed outreach materials on biosolids as well as preventing pharmaceuticals and other wastes from being flushed into sanitary sewer systems. During the event the public did not voice any concerns associated with biosolids, pharmaceuticals, or other issues. Moving forward - City staff have identified additional public events such as May Fest, Earth Day Event, and others that may now be feasible for public outreach activities.

GOAL: Address public concerns regarding biosolids

Objective: Increase the input of concerns by 20%

ACTION PLAN A:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Online Biosolids Survey				
1. Develop online survey questions	VCWRF Biosolids personnel	April 30, 2019	Complete (April 30, 2019)	<ul style="list-style-type: none"> • Improve Public Relations
2. Submit questions to Communication Specialist for review	Communication Specialist	May 1, 2019	Complete (May 1, 2019)	
3. Post survey to City’s Website	Communication Specialist	July 31, 2019	Complete (July 2, 2019)	
4. Edit FAQ sheet to include link to online survey	VCWRF Biosolids personnel	August 21, 2019	Complete (July 2, 2019)	
5. QR codes added to land application signs	VCWRF Biosolids personnel	June 30, 2020	Complete (July 9, 2020)	
6. Evaluate and quantify responses to identify concerns	VCWRF Biosolids personnel	December 31, 2021	Not Complete	

ACTION PLAN B:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Increase number of biosolids-only tour presentations				
1. Update current tour presentation to include advertisement for future biosolids-only presentations	VCWRF Biosolids personnel	September 1, 2019	Complete (July 2, 2019)	<ul style="list-style-type: none"> • Improve Public Relations
2. Schedule biosolids-only presentations at TCU and/or UTA	VCWRF Biosolids personnel	December 31, 2019	Complete (August 22, 2019)	
3. (surveys given at beginning and end of presentation)				
4. Evaluate biosolids-only survey responses after tours to identify concerns	VCWRF Biosolids personnel	December 31, 2020	Not complete (PROJECT ON HOLD – SEE FOOTNOTE)	

Notes/Comments:

Action Plan A:

- **March 2019:** This is a new public outreach goal to increase the number of concerns we elicit from public outreach efforts.
- **April 2019:** This goal's objective was amended after further evaluating public comment data and determining that 10% was more realistic.
- **June 2019:** The online survey is projected to be posted to the City's website by July 31st.
Scheduling biosolids-only tours will likely occur during the Fall school semester.
- **August 2019:** Procurement of the "rider" signs was pushed until the end of November 2019, due to budget constraints and a purchasing freeze at the end of the fiscal year (October 2018 through September 2019).
- **Dec 2019:** Project will be extended to account for a new biosolids contractor and to verify what type of signage they will be utilizing at the land application sites.
- **March 2020** – New biosolids contractor (Synagro) assumed responsibility for dewatering, transportation and land application on April 1, 2020. This also includes biosolids public outreach activities. In the coming weeks the City will schedule a meeting with Synagro to discuss the feasibility of "rider signs" or other measures to facilitate survey responses.
- **June 2020** – Goal has not been updated
- **September 2020** – QR codes added to land application signage. Working with Biosolids Contractor to improve response.
- **December 2020-** Only one response was received from the QR codes, and it was from a biosolids supporter. Due to the small number of responses, the City will coordinate with the Biosolids Contractor to evaluate what can be done to increase public utilization of QR codes. This will be included in the next quarterly update.
- **March 2021** – Biosolids Contractor is currently evaluating options for increasing public utilization of QR codes, including other alternatives.
- **June 2021:** QR codes were added to the City's FAQ sheet, which is distributed at the land application sites. During the quarter, there were two responses to the online survey. One raised concerns in regards to odors from biosolids land application activities. The other concern was in regards to speeding trucks on dirt roads.
- **September 2021:** QR codes are included on land application signs as well as FAQ sheets distributed via InfoTubes (also at land application sites). To date the City has received three responses to QR codes (see updates for December 2020 & June 2021). Need to work with Biosolids Contractor to find ways to increase QR code visibility.

Action Plan B

- **Dec 2019:** No update.
- **March 2020** – Due to the COVID-19 pandemic all tours at Village Creek have been cancelled. Surveys will need to be gathered by other means.
- **June 2020** – Goal has not been updated.
- **September 2020** – Tours are on hold due to COVID-19. Goal may need to be moved to CAP list due to concerns with SMART criteria.
- **December 2020-** Biosolids presentations have been on hold due to concerns associated with COVID-19. Will evaluate during next quarterly update.
- **March 2021:** Tours still on hold due to the pandemic. Will re-evaluate at the next quarterly update.
- **June 2021:** City policy is still not allowing public tours of the plant. Public speaking events still not available. Will reassess during next quarter.
- **September 2021:** City policy is still not allowing public tours of the plant. Will reassess during next quarter.

GOAL: Design, Build and Operate New Biosolids Facility

Objective: Transition from Class AB Biosolids to Class A Biosolids

ACTION PLAN:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Design & Build Rotary Drum Dryer Facility				
1. RFQ Issuance	Steven L. Nutter-Biosolids EMS Mgr	January 10, 2019	Complete (January 10, 2019)	
2. RFQ Submittals	Steven L. Nutter-Biosolids EMS Mgr	March 7, 2019	Complete (March 7, 2019)	
3. RFP Issuance	Steven L. Nutter-Biosolids EMS Mgr	May 31, 2019	Complete (June 7, 2019)	
4. RFP Submittals	Steven L. Nutter-Biosolids EMS Mgr	August 22, 2019	Complete (September 5, 2019)	<ul style="list-style-type: none"> • Environmental Performance • Improve Biosolids Management Practices
5. Preferred Proponent Notification	Steven L. Nutter-Biosolids EMS Mgr	September 20, 2019	Complete (Sept 20, 2019)	
6. City Council Approval	Steven L. Nutter-Biosolids EMS Mgr	December 1, 2019	Complete (Dec 10, 2019)	
7. Design-Build Notice to Proceed	Steven L. Nutter-Biosolids EMS Mgr	January 1, 2020	Complete (December 30, 2019)	
8. Complete 100% Design Work	Steven L. Nutter-Biosolids EMS Mgr	December 1, 2020	Complete (December 20, 2020)	
9. Begin Construction	Steven L. Nutter-Biosolids EMS Mgr	August 13, 2020	Complete (July 14, 2020)	
10. Project Acceptance for Production of Class A Biosolids	Steven L. Nutter-Biosolids EMS Mgr	July 11, 2022	Not Complete	

Notes/Comments:

- **June 2019:** RFP has been issued with a draft contract. RFP submittals are due August 22, 2019.
- **September 2019:** RFP submittals have been received and are being reviewed by the City. Preferred Proponent notification should occur before the end of September.
- **December 2019:** City Council approved funding for a long term ODBO contract (operate, design, build, operate) to dewater and beneficially reuse biosolids. This will start with a two and a half year interim phase where the contractor will continue to produce Class AB biosolids. During the interim phase, the contractor will design and build a new rotary drum dryer facility to produce Class A biosolids. Once construction of the new facility is completed, the contractor will primarily produce Class A biosolids for land application and/or product distribution.
- **March 2020:** City & Biosolids Contractor working to complete 30% design work. Construction activities have not yet started.
- **June 2020:** Design work completed for the foundation package. Drilling and foundation construction scheduled to begin in July 2020.
- **September 2020:** Construction activities started on July 14, 2020. Drilling and foundation construction approximately 85% complete. Contractor is working to install electrical conduits. As of September 2020, the design phase has reached 90%. Expect to reach 100% by December 2020.
- **December 2020:** Design phase is nearing completion. Contractor has submit 100% design plans which are currently being reviewed by the City and the Texas Water Development Board (TWDB). Construction activities continue – work on the building’s piers has been completed and foundation & electrical work is underway.
- **March 2021:** Foundation work is completed. Walls and supporting structures are currently being constructed.
- **June 2021:** Building and equipment installation started in March. The building is near completion. Centrifuges, wet cake bin, drum dryer, polyclone, scrubber, and bridge crane have been installed.
- **September 2021:** Construction 76% complete. Building shell work complete. Also working on exterior electrical, HVAC, condensate pump station, and silos. Processed change order 1 for silo lights. Received proposal for air permit amendment to use biogas.

GOAL: Asset Management Program – Existing & New Biosolids Facilities

Objective: Implement computerized maintenance management system (Maximo) for 100% of the existing biosolids infrastructure (belt press building, storage tanks, pump station, etc). Implementation will include issuance of work orders for predictive, preventative, and corrective maintenance activities.

ACTION PLAN:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Implement Maximo				
1. Meet with Water Department's Asset Management Team to strategize on Maximo implementation	Steven L. Nutter-Biosolids EMS Mgr Eduardo Prospero – Project Mgr	November 25, 2020	Complete (December 7, 2020)	<ul style="list-style-type: none"> Improve Biosolids Management Practices
2. Secure Maximo License	Eduardo Prospero – Project Mgr	February 28, 2021	Complete (February 26, 2021)	
3. Enter existing structure assets into Maximo	Eduardo Prospero – Project Mgr	June 30 th , 2021	Complete (June 25, 2021)	
4. Maximo training for Biosolids Contractor	Eduardo Prospero – Project Mgr	August 31, 2021	Complete (June 15, 2021)	
5. Begin entering current dewatering facility asset properties into Maximo	Eduardo Prospero – Project Mgr	November 1, 2021	Not Complete	
6. Begin entering dryer facility assets into Maximo	Eduardo Prospero – Project Mgr	December 1, 2021	Not Complete	
7. All assets entered into Maximo; work orders issued for all maintenance activities	Eduardo Prospero – Project Mgr	December 31, 2021	Not Complete	

Notes/Comments:

- **September 2020:** Goal & Objective created for Maximo implementation (Biosolids Contract Requirement).
- **December 2020:** Initial meeting held with Synagro and the City's Asset Management Team to discuss CMMS implementation for existing facility.
- **March 2021:** Project was put on hold due to the extreme winter weather event in February 2021, as well as facility repairs that occurred afterwards. Will meet with Synagro and revise timeline for Maximo implementation.
- **June 2021:** Existing assets and hierarchy have been entered into Maximo
- **September 2021:** Approximately 40% of current dewatering assets & job plans are active in the system

GOAL: Update Village Creek Standard Operating Procedures (SOPs)

Objective: Update, Review & Revise 100% of Village Creeks SOPs

ACTION PLAN:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Update Village Creek SOPs				
1. Develop updated format for SOPs	Migdalia Jackson, Asst Oper Supt Steven L. Nutter-Biosolids EMS Mgr	September 25, 2020	Completed (September 25, 2020)	<ul style="list-style-type: none"> Improve Biosolids Management Practices
2. Begin review and update of existing SOPs	Migdalia Jackson, Asst Oper Supt Steven L. Nutter-Biosolids EMS Mgr	September 25, 2020	Completed (September 25, 2020)	
3. Complete review of existing SOPs	Migdalia Jackson, Asst Oper Supt Steven L. Nutter-Biosolids EMS Mgr	January 1, 2022	Not Complete	

Notes/Comments:

- **September 2020:** Goal & Objective created for updating Village Creek's SOPs.
- **December 2020:** Approximately 60% of the SOPs have been updated, and the project is on schedule for completion.
- **March 2021:** Approximately 75% of the SOPs are updated, and the remainder should be completed by May 31, 2021.
- **June 2021:** The work is near completion and should be finished in July 2021.
- **September 2021:** Approximately twenty SOPs remain to be completed. Projected completion date is: October- November, 2021 for VC operations and biosolids. Update of safety SOPs is projected to be completed by January 1, 2022.

GOAL: Digester Improvement Project

Objective: Increase biogas production by 15% when compared to baseline data (FY2023). This project will include many improvements associated with the anaerobic digesters, including upgrades to the mixing systems, gas piping, replacing foam insulation on digester domes, and addressing the heat loss issue for digester #2.

ACTION PLAN:		RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Digester Project Scoping & Design					
1.	Project Kick Off Meeting	Suzanne Abbe – Project Mgr	December 11, 2020	Complete (December 11, 2020)	<ul style="list-style-type: none"> Improve Environmental Performance
2.	Technical Memoranda	Suzanne Abbe – Project Mgr	February 12, 2021	Complete (March 23, 2021)	
3.	Conceptual Design (30%)	Suzanne Abbe – Project Mgr	August 13, 2021	Complete (August 31, 2021)	
4.	Preliminary Design (60%)	Suzanne Abbe – Project Mgr	December 10, 2021	Not Complete	
5.	Final Design (90%)	Suzanne Abbe – Project Mgr	April 22, 2022	Not Complete	
6.	Final Construction Documents (100%)	Suzanne Abbe – Project Mgr	June 17, 2022	Not Complete	
ACTION PLAN:		RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
Digester Project Construction Activities					
1.	Bid Advertisement / Bid Opening	Suzanne Abbe – Project Mgr	July 21, 2022	Not Complete	<ul style="list-style-type: none"> Improve Environmental Performance
2.	Start Construction	Suzanne Abbe – Project Mgr	October 21, 2022	Not Complete	
3.	Finish Construction	Suzanne Abbe – Project Mgr	March 8, 2024	Not Complete	

Notes/Comments:

- December 2020:** New Project
- March 2021:** Work this quarter primarily consisted of information gathering, analysis, and preparation of the draft memoranda. Information gathering efforts included compiling historical digester operating data, inspections (electrical, structural, mechanical, and safety), and non-destructive testing of the digester domes (2 of 14 completed).
- June 2021:** Received tech memos on evaluations, held review meeting, selected preferred alternatives for mixers and flares, and worked with leadership to identify which improvements move forward into design. Non-destructive testing of domes is complete. Memo with results is being finalized. Testing of Digester 2 heating system was postponed until next winter due to Digester 2 being out of service when testing was originally scheduled. Working with Hazen on Amendment 1 to include additional design scope. New scope items include rehab of the compressors and replacement of the dryers in the Gas Compressor Building, new H2S scrubber, rehab/replace the natural gas compressor for the gas turbines, and electrical upgrades that will allow pumped mixing to replace the inefficient gas mixing systems in Digesters 1-8.
- September 2021:** Survey and SUE conducted around digester area. 30% design package submitted including memo on structural assessment of domes. 30% review complete. Added turbine gas compressors to project scope. Amendment 1 for additional scope items routing for signatures. Multiple site visits to turbine compressor with Hazen, Vic Weir, Hazen's energy engineer, and Mycom distributor. Hazen outlined improvements that can be made immediately to improve operation of compressor until overall project is completed in 2024. Recommendations delivered to Julie Hunt, John Logan, and VC maintenance team.