

BIOSOLIDS EMS — ELEMENT 3.0

CRITICAL CONTROL POINTS



REVISION	EFFECTIVE DATE	APPROVAL SIGNATURE
15	October 14, 2020	

PURPOSE

This element identifies the Critical Control Points and Operational Controls within the City of Fort Worth’s Biosolids Value Chain (Figure 3.1). Critical Control Points must be properly managed to ensure that the Biosolids Program meets applicable legal, quality and public acceptance requirements.

SCOPE

This element pertains to all management categories and processes in the Biosolids Value Chain as shown in the attached Village Creek Water Reclamation Facility diagram (Figure 3.2) and the attached EMS Critical Control Points Master Table (Table 3.1).

KEY WORDS

- Biosolids Value Chain
- Biosolids EMS Manager
- Critical Control Points
- EMS Management Team
- Environmental Impact
- Operational Controls

RESPONSIBILITY

The roles and responsibilities of each department and organization involved in the Biosolids Value Chain are fully defined in EMS Element 7.0 Roles and Responsibilities. During the development of the Critical Control Points, the responsible divisions were identified for each critical control point and listed on the attached Environmental Management System (EMS) Master Table.

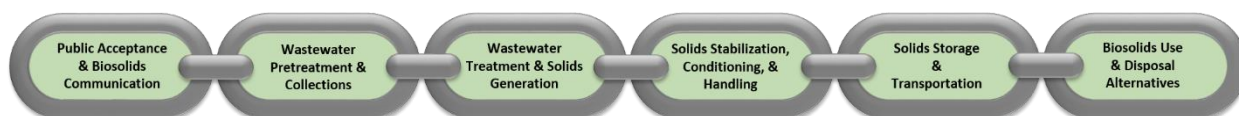


Figure 3.1 Biosolids Value Chain illustrating how various aspects of biosolids production are linked together.

PROCEDURE

- **Identify Critical Control Points**
The EMS Management Team uses the guidelines presented in the NBP’s National Manual of Good Practice for Biosolids and the Biosolids Management System Guidance Manual to establish groupings of biosolids management practices applicable to the City’s Biosolids Program as shown in the attached EMS Critical Control Points Master Table.
- **Identify Critical Control Point Operational Controls**
After identifying the Critical Control Points, the EMS Management Team identifies the unit processes, events, activities and other requirements within each Critical Control Point. The ordinances, regulations, standard operating procedures, and work practices within each control point are also identified. These are also listed in the attached EMS Critical Control Points Master Table.

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- **Identify the Environmental Impacts at the Critical Control Points**
Once the EMS Management Team establishes the Critical Control Points and Operational Procedures, any environmental impacts associated with the control points are then identified. The team considers both normal operating conditions and emergency or abnormal operating conditions during the evaluation as specified in the EMS Guidance Manual.
- **Review and Update Critical Control Points**
The Biosolids EMS Manager and Biosolids EMS Coordinator are responsible for ensuring that the list of critical control points is kept up to date. If critical control points are added or deleted from the list, then the EMS Management Team will be notified by email and allowed to provide feedback if necessary. Also, during the Annual EMS Management Review the EMS Management Team will be shown a complete list of all critical control points. Feedback provided during this meeting, such as the addition or removal of processes/systems, will be incorporated into the Critical Control Points Master Table. As previously stated, an updated master list will be emailed to the team once the edits are finalized.
- **Notification**
Once the critical control point(s) or environmental impact(s) are changed for the new processes/systems, the Biosolids EMS Manager will notify the NBP and assigned third-party auditor in writing of the change.

REFERENCES

- BMP Guidance Manual, (NBP, June 2011)
- Code of Good Practice, (NBP, June 2011)
- Manual of Good Practice for Biosolids, (NBP, June 2011)
- Contractor SOPs
- VCWRF SOPs

EMS Cross References

- Element 2.0 Biosolids Management Policy
- Element 3.0 Critical Control Points
- Element 4.0 Legal and Other Requirements
- Element 6.0 Public Participation in Planning
- Element 10.0 Operational Control of Critical Control Points
- Element 13.0 Monitoring and Measurement
- Element 17.0 Periodic Management Review of Performance

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REVISION HISTORY

Revision #	Date	Revision Description
15	10/14/2020	Updated Critical Control Points- Master Table and added figure and table references to the Purpose and Scope sections
14	03/31/2020	Update to Figure 3.2, removed references to specific dewatering facility contractor (biosolids contractor) Renda Environmental Inc. (REI) and contractor operation of turbine generators for the energy system at VCWRF – EMS Master Table
13	09/27/2018	Update to Procedure section, update to Critical Control Points Master Table
12	01/04/2017	Updated Critical Control Points-EMS Master Table
11	08/04/2016	Merged element to new format, updated review criteria, updated Critical Control Points table
10	10/06/2014	Updated Biosolids Value Chain graphic, updated Critical Control Points table
09	08/05/2013	Updated references, updated Critical Control Points—EMS Master Table
08	07/29/2011	Update Critical Control Points – EMS Master Table, correct typographical errors
07	06/13/2011	Update Critical Control Points – EMS Master Table
06	01/26/2011	Correct typographical error
05	11/16/2010	Update references
04	05/15/2008	Audit (YR2) 2007
03	06/29/2007	Audit (YR1) 2006
02	11/29/2004	2004 Issue
01.a	10/18/2004	Internal Audit Revisions
01	10/01/2004	Approval Draft
SR	01/30/2004	Issued for Status Review

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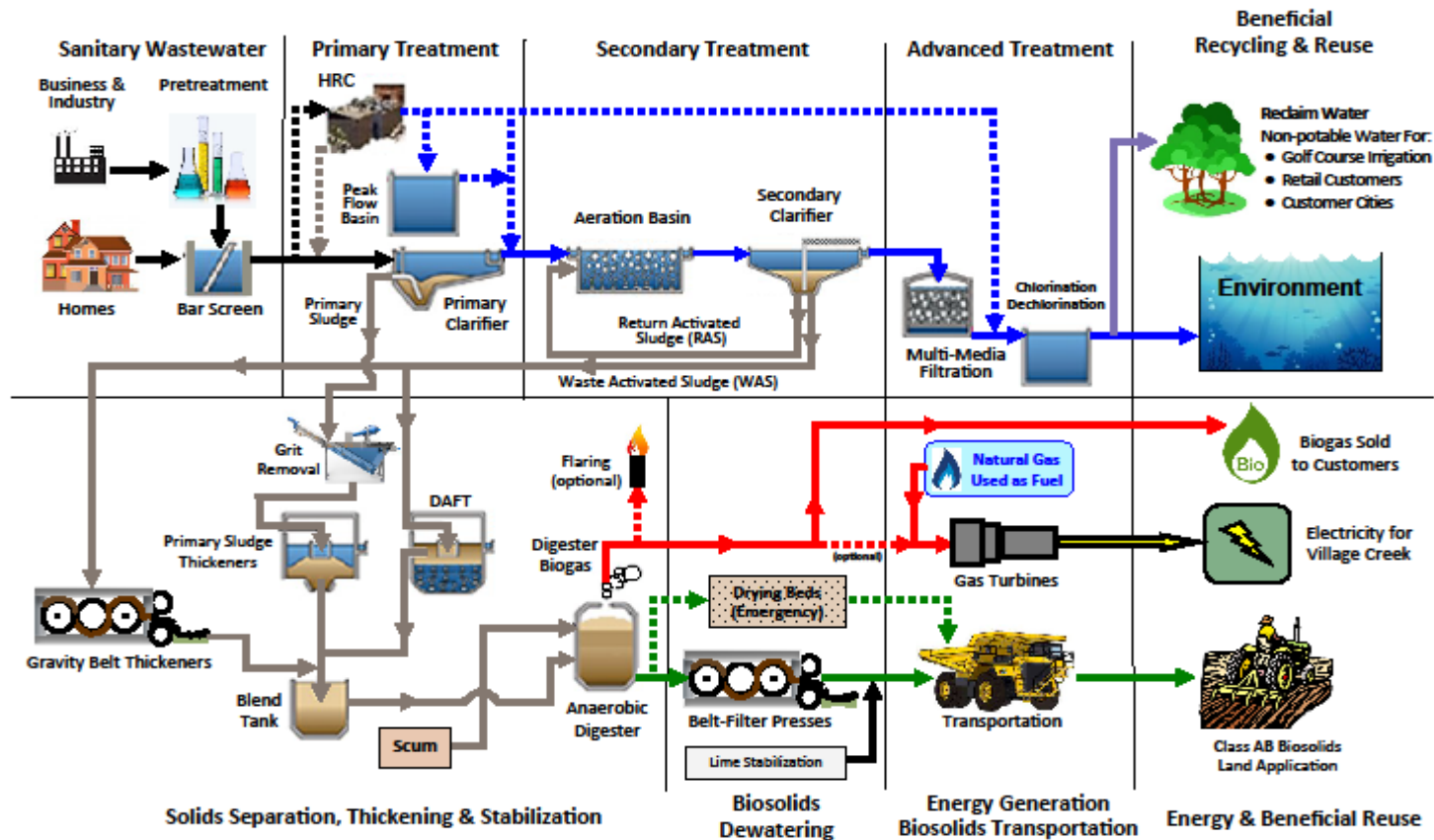
FIGURE 3.2 — VCWRF BIOSOLIDS VALUE CHAIN



Plant Overview



Village Creek Wastewater Treatment Process



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TABLE 3.1 — CRITICAL CONTROL POINTS MASTER TABLE



Biosolids Value Chain	Critical Control Points	Roles & Responsibilities	Operational Controls						Monitoring Activities		Environmental Impacts
			Regulatory Documents	Standard Operating Procedures	Other Documents	Location of SOP	Key Operational Parameters	Activity	Frequency		
Public Acceptance and Biosolids Communication	Regulatory Requirements	<ul style="list-style-type: none"> VCWRF Regulatory/Environmental Administrator 	<ul style="list-style-type: none"> TPDES Permit TAC Title 30 Ch. 312 	<ul style="list-style-type: none"> EMS Element 4.0 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> EMS Manual 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Element 4.0 Table updates/revisions 	<ul style="list-style-type: none"> Annually 	<ul style="list-style-type: none"> Air Quality Surface & Groundwater Quality Biosolids Quality Reclaimed Water Quality Public Perception & Acceptance 	
	Public Outreach	<ul style="list-style-type: none"> VCWRF Contractor Media Relations and Communications Coordinator 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> EMS Element 6.0 EMS Element 9.0 	<ul style="list-style-type: none"> Pamphlets Brochures Presentations City's Website 	<ul style="list-style-type: none"> EMS Manual 	<ul style="list-style-type: none"> Public input on Biosolids Program (positive and negative) 	<ul style="list-style-type: none"> VCWRF Tours Tour Surveys Complaint Investigations 	<ul style="list-style-type: none"> Continual and ongoing If necessary 	<ul style="list-style-type: none"> Public Perception & Acceptance 	
Wastewater Pretreatment and Collections	Significant Industrial User Discharges	<ul style="list-style-type: none"> Pretreatment Services Central Laboratory Customer Cities 	<ul style="list-style-type: none"> TPDES Permit 40 CFR Part 403 40 CFR Parts 405-471 30 TAC Chapter 315 Fort Worth Pretreatment Ordinance Customer City Ordinances & Contracts SIU Permits 	<ul style="list-style-type: none"> Pretreatment SOP's Sampling SOP's Enforcement Response Plan Industrial User Surveys SODP (Slag Discharge Control Plan) TOAMP (Toxic Organic Management Plan) BMP's (Best Management Practices) Central Laboratory SOP's 	<ul style="list-style-type: none"> Pretreatment Data Management System Industrial User Files Guidelines for Self-Monitoring 	<ul style="list-style-type: none"> Pretreatment Services Customer City Central Laboratory 	<ul style="list-style-type: none"> TPDES Discharge Limits Pollutants in the Influent & Effluent: 30 TAC 307 and 40 CFR Part 122 Appendix D Table II Pollutants and discharges regulated by SIU Permit Reclaimed Water pollutants required by TPDES Permit Flow 	<ul style="list-style-type: none"> WWTP Influent and Effluent Monitoring SIU sampling by Control Authority SIU Self-Monitoring SIU Inspections by Control Authority Reclaimed Water Monitoring Activities Flow 	<ul style="list-style-type: none"> Frequency dictated by TPDES permit Minimum 2/yr. Variable Minimum 1/yr. Fecal 2/wk.; turbidity 2/wk.; CBOD₅ 2/wk. Continuous 	<ul style="list-style-type: none"> Air Quality Surface & Groundwater Quality Biosolids Quality Reclaimed Water Quality 	
	Wholesale Customer Discharges	<ul style="list-style-type: none"> Pretreatment Services Central Laboratory 	<ul style="list-style-type: none"> 40 CFR Part 403 30 TAC Chapter 315 Customer City Ordinances & Contracts 	<ul style="list-style-type: none"> Pretreatment SOP's Sampling SOP's Central Laboratory SOP's 	<ul style="list-style-type: none"> Pretreatment Data Management System 	<ul style="list-style-type: none"> Pretreatment Services Customer City Central Laboratory 	<ul style="list-style-type: none"> TPDES Discharge Limits Pollutants in the Influent & Effluent: 30 TAC 307 and 40 CFR Part 122 Appendix D Table II Reclaimed Water pollutants required by TPDES Permit Flow 	<ul style="list-style-type: none"> Wholesale Customer City Monitoring WWTP Influent and Effluent Monitoring Reclaimed Water Monitoring Activities Flow 	<ul style="list-style-type: none"> 3/year (metals, Oil & grease, BOD, TSS, COD) Frequency dictated by TPDES Permit Fecal 2/wk.; turbidity 2/wk.; CBOD₅ 2/wk. Continuous 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	
	Commercial Facilities and Small Industrial Users Monitored & Unmonitored	<ul style="list-style-type: none"> Pretreatment Services Central Laboratory 	<ul style="list-style-type: none"> 40 CFR Part 403 30 TAC Chapter 315 Fort Worth Pretreatment Ordinance 	<ul style="list-style-type: none"> Pretreatment SOP's Sampling SOP's Central Laboratory SOP's 	<ul style="list-style-type: none"> Code of management Practices for Silver-Imaging Facilities Best Management Practices for Non-monitored Commercial Users Pretreatment Data Management system 	<ul style="list-style-type: none"> Pretreatment Services VCWRF Customer City Central Laboratory 	<ul style="list-style-type: none"> Local Limits Prohibited Discharge Standards 	<ul style="list-style-type: none"> Local Limits 	<ul style="list-style-type: none"> As needed 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	
	Classed High Strength Users (Restaurants, etc.)	<ul style="list-style-type: none"> Pretreatment Services Central Laboratory 	<ul style="list-style-type: none"> 40 CFR Part 403 30 TAC Chapter 315 Fort Worth Pretreatment Ordinance Grease/Grit Trap Permits 	<ul style="list-style-type: none"> Pretreatment SOP's Sampling SOP's Central Laboratory SOP's 	<ul style="list-style-type: none"> Best Management Practices for Non-Monitored Commercial Users Pretreatment Data Management System 	<ul style="list-style-type: none"> Pretreatment Services Customer City Central Laboratory 	<ul style="list-style-type: none"> Oil & Grease BOD, TSS, COD Local Limits Prohibited Discharge Standards 	<ul style="list-style-type: none"> Oil & Grease BOD, TSS, COD Local Limits 	<ul style="list-style-type: none"> As needed As needed As needed 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	
	Septage Hauling	<ul style="list-style-type: none"> Pretreatment Services Central Laboratory 	<ul style="list-style-type: none"> 40 CFR Part 403 30 TAC Chapter 315 Fort Worth Pretreatment Ordinance Waste Hauler Permit 	<ul style="list-style-type: none"> Pretreatment SOP's Sampling SOP's Central Laboratory SOP's 	<ul style="list-style-type: none"> Pretreatment Data Management System 	<ul style="list-style-type: none"> Pretreatment Services Customer City Central Laboratory 	<ul style="list-style-type: none"> Local Limits Prohibited Discharge Standards 	<ul style="list-style-type: none"> Local Limits 	<ul style="list-style-type: none"> As needed 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	
	Groundwater Remediation Discharges	<ul style="list-style-type: none"> Pretreatment Services Central Laboratory 	<ul style="list-style-type: none"> 40 CFR Part 403 30 TAC Chapter 315 Fort Worth Pretreatment Ordinance Groundwater Contract 	<ul style="list-style-type: none"> Pretreatment SOP's Sampling SOP's Central Laboratory SOP's 	<ul style="list-style-type: none"> Pretreatment Data Management System 	<ul style="list-style-type: none"> Pretreatment Services Customer City Central Laboratory 	<ul style="list-style-type: none"> Local Limits Pollutants of Concern Prohibited Discharge Standards 	<ul style="list-style-type: none"> Local Limits Pollutants of Concern 	<ul style="list-style-type: none"> As needed As needed 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	
	Residential User Discharges	<ul style="list-style-type: none"> Pretreatment Services Central Laboratory 	<ul style="list-style-type: none"> 40 CFR Part 403 30 TAC Chapter 315 Fort Worth Pretreatment Ordinance 	<ul style="list-style-type: none"> Pretreatment SOP's Sampling SOP's Central Laboratory SOP's 	<ul style="list-style-type: none"> Pretreatment Data Management System 	<ul style="list-style-type: none"> Pretreatment Services Customer City Central Laboratory 	<ul style="list-style-type: none"> Local Limits (if applicable) Prohibited Discharge Standards 	<ul style="list-style-type: none"> Local Limits 	<ul style="list-style-type: none"> As needed 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	

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TABLE 3.1 — CRITICAL CONTROL POINTS MASTER TABLE



Biosolids Value Chain	Critical Control Points		Roles & Responsibilities	Operational Controls						Monitoring Activities		Environmental Impacts
				Regulatory Documents	Standard Operating Procedures	Other Documents	Location of SOP	Key Operational Parameters	Activity	Frequency		
Wastewater Treatment and Solids Generation	Asset Management	Maximo	<ul style="list-style-type: none"> VC Operations VC Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Maximo work order system 	<ul style="list-style-type: none"> Village Creek SOPs 	<ul style="list-style-type: none"> Maximo (CMMS) VC Library (SOPs) 	<ul style="list-style-type: none"> Predictive Maintenance Preventative Maintenance Routine Maintenance Corrective Maintenance 	<ul style="list-style-type: none"> Maintenance activities as required per manufacturer specification or VC SOP 	<ul style="list-style-type: none"> As required per manufacturer specification or VC SOP 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	
	Preliminary Treatment-Screening	Headworks Influent	<ul style="list-style-type: none"> VC Operations VC Maintenance Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Influent Flow SOP (NFL 01.001-2.001) Headworks SOP (HDWK 01.001) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Headworks/Primary Office Central Laboratory 	<ul style="list-style-type: none"> Ammonia BOD Flow TSS 	<ul style="list-style-type: none"> Ammonia BOD Flow-MGD Pretreatment Influent Monitoring TSS TSS (C Box and E Box) Flow-MGD 	<ul style="list-style-type: none"> daily daily 1/week 3/week continuous 1/month daily daily continuous 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution 	
		Headworks-Bar Screens	<ul style="list-style-type: none"> VC Operations VC Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Headworks SOP (HDWK 01.001, 02.001, 02.002, 04.001, 04.002, 05.001) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Headworks/Primary Office 	<ul style="list-style-type: none"> Flow Screenings 	<ul style="list-style-type: none"> Flow-MGD Roll-off Boxes (screenings) 	<ul style="list-style-type: none"> continuous as needed 	<ul style="list-style-type: none"> Air Quality Screenings to Landfill Potential for cross-media contamination Biosolids Quality 	
		Headworks-Fine Screens	<ul style="list-style-type: none"> VC Operations VC Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Headworks SOP (HDWK, 02.002, 04.003, 03.001, 03.002, 05.001) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Headworks/Primary Office 	<ul style="list-style-type: none"> Flow Screenings 	<ul style="list-style-type: none"> Flow-MGD Roll-off Boxes (screenings) 	<ul style="list-style-type: none"> continuous as needed 	<ul style="list-style-type: none"> Air Quality Screenings to Landfill Potential for cross-media contamination Biosolids Quality 	
	Primary Treatment - Clarification and Storage	Primary Clarifier	<ul style="list-style-type: none"> VC Operations VC Maintenance Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Primary Clarification SOP (PRIM 01.001-04.001) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Headworks/Primary Office Central Laboratory 	<ul style="list-style-type: none"> Detention Time Flow Settleable Solids Sludge Blanket 	<ul style="list-style-type: none"> Detention Time Flow-MGD Settleable Solids Sludge Blanket 	<ul style="list-style-type: none"> continuous continuous 3/week daily continuous 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality 	
		Primary Effluent Pumps	<ul style="list-style-type: none"> VC Operations VC Maintenance Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Primary Clarification SOP (PRIM 05.001) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Headworks/Primary Office Central Laboratory 	<ul style="list-style-type: none"> Flow 	<ul style="list-style-type: none"> BOD (inflow for aeration basins) TSS (inflow for aeration basins) COD (inflow for aeration basins) Settleable Solids 	<ul style="list-style-type: none"> 5/week daily 2/week 3/week 	<ul style="list-style-type: none"> Surface and Groundwater Pollution 	
		High Rate Clarifier (HRC)	<ul style="list-style-type: none"> VC Operations VC Maintenance Central Laboratory Pretreatment Services 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> High Rate Clarification SOP (HRCN 01.001-07.001)* Pretreatment Sampling SOP Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Headworks/Primary Office Pretreatment Services Central Laboratory 	<ul style="list-style-type: none"> Ammonia BOD Flow TSS Turbidity pH BOD 	<ul style="list-style-type: none"> as needed - when in operation 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution 		
	Secondary Treatment-Clarification and Storage	Aeration Basins	<ul style="list-style-type: none"> VC Plant Admin VC Plant Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Secondary Treatment SOP (SECY 01.001-02.003) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Filter Building (1-20 Filters), SO2 Office Central Laboratory 	<ul style="list-style-type: none"> Detention time DO F/M Ratio (loading rate) Flow Microscopic Observation MLSS MLVSS Settleability Sludge Age pH WAS 	<ul style="list-style-type: none"> Detention time DO F/M Ratio (loading rate) Flow-MGD Microscopic Observation MLSS MLVSS Settleability Sludge Age pH WAS 	<ul style="list-style-type: none"> Continuous Continuous Calculated daily Continuous 1/week daily daily 2/day calculated daily 1/week daily as needed daily Continuous Continuous Continuous Mar-Oct 1/wk, Nov-Feb 3/wk continuous daily 2/day 2/shift daily 	<ul style="list-style-type: none"> Air Quality Biosolids Quality 	
		Secondary Clarifiers	<ul style="list-style-type: none"> VC Plant Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Secondary Treatment SOP (SECY 01.001, 03.001, 04.001-05.001) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Filter Building (1-20 Filters), SO2 Office Central Laboratory 	<ul style="list-style-type: none"> Ammonia Area-wide BOD & TSS Detention Time Flow Nitrates & Nitrites RAS (return rate) Return sludge % solids Settleability Sludge Level Waste Sludge % solids 	<ul style="list-style-type: none"> Ammonia Area-wide BOD & TSS Detention Time Flow-MGD Nitrates & Nitrites RAS (return rate) Return sludge % solids Settleability Sludge Level Waste Sludge % solids 	<ul style="list-style-type: none"> as needed daily Continuous Continuous Mar-Oct 1/wk, Nov-Feb 3/wk continuous daily 2/day 2/shift daily 	<ul style="list-style-type: none"> Air quality Surface and groundwater pollution Biosolids quality 	

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TABLE 3.1 — CRITICAL CONTROL POINTS MASTER TABLE



Biosolids Value Chain	Critical Control Points		Roles & Responsibilities	Operational Controls						Environmental Impacts		
				Regulatory Documents	Standard Operating Procedures	Other Documents	Location of SOP	Key Operational Parameters	Monitoring Activities			
									Activity		Frequency	
Wastewater Treatment and Solids Generation (Cont.)	Secondary Treatment-	Aeration Basins	<ul style="list-style-type: none"> VC Plant Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Filtration SOP (FLIT 01.001-04.001) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Filter Building (1-20 Filters), SO2 Office Central Laboratory 	<ul style="list-style-type: none"> Backwash Rate Backwash Solids Sample BOD Filtration Rate Flow Head Loss In TSS & out TSS 	<ul style="list-style-type: none"> Backwash Rate Backwash Solids Sample BOD Filtration Rate Flow -MGD Head Loss In TSS & out TSS 	<ul style="list-style-type: none"> continuous daily daily continuous continuous continuous daily 	<ul style="list-style-type: none"> Air quality Surface and Groundwater Pollution 	
		Chlorination/Dechlorination	<ul style="list-style-type: none"> VC Plant Operations 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Disinfection SOP (DSFN 01.001-05.002) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library SO2 Office 	<ul style="list-style-type: none"> Detention Time Dosage -poundage Flow Residual on both 	<ul style="list-style-type: none"> Detention Time Monitor dosage -poundage Flow -MGD Residual on both 	<ul style="list-style-type: none"> continuous 	<ul style="list-style-type: none"> Air quality Surface water quality 	
	Discharges	Effluent to river	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Monthly effluent report Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Admin Regulatory/ Environmental Admin. Central Laboratory 	<ul style="list-style-type: none"> Effluent Monitoring for Characteristics listed in effluent limitations and monitoring requirements- See Table in Permit Biomonitoring Cl₂ Residual DO pH 	<ul style="list-style-type: none"> Flow-MGD CBOD₅ TSS Ammonia/Nitrogen E. Coli Effluent Chronic Biomonitoring -Freshwater 1. Water Flea (Ceriodaphnia dubia) 2. Fathead Minnow (Pimephales promelas) Effluent 24 Hour Acute Biomonitoring Cl₂ Residual DO pH CBOD₅ 	<ul style="list-style-type: none"> continuous daily daily daily 5/week quarterly biannually continuous continuous daily 2/week 	<ul style="list-style-type: none"> Surface and Groundwater Pollution 	
		Reclaimed water	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance Central Laboratory 	<ul style="list-style-type: none"> Reclaimed Water Permit 	<ul style="list-style-type: none"> Reclaimed Water SOP (RCLM 01.001-05.002)" Operations Manual Pump Station #1 (Draft) Central Laboratory SOP's Reclaimed Water System Operations and Maintenance Manual 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Admin Regulatory/ Environmental Admin. Filter building (1-20) filters Central Laboratory 	<ul style="list-style-type: none"> CBOD₅ Fecal Flow Turbidity COD 	<ul style="list-style-type: none"> CBOD₅ Fecal (monthly, daily max) Flow-MGD Turbidity COD 	<ul style="list-style-type: none"> 2/week continuous 2/week 1/week 	<ul style="list-style-type: none"> Surface and Groundwater Pollution 	
		Electricity	Gas Turbine Generators	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations 	<ul style="list-style-type: none"> Federal Operating Permit 01704 NSR Permit 7553 	<ul style="list-style-type: none"> Energy SOPs (Under Development) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Library VCWRF Turbine Building 	<ul style="list-style-type: none"> Power production Gas consumed-3 sources Utility, Digester (alternate) Heat up digesters 	<ul style="list-style-type: none"> Power production Gas consumed Amount of heat used 	<ul style="list-style-type: none"> daily daily daily 	<ul style="list-style-type: none"> Air Quality
			Heat Recovery Steam Generator (HRSG) & Steam Systems	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance 	<ul style="list-style-type: none"> Federal Operating Permit 01704 NSR Permit 7553 	<ul style="list-style-type: none"> Energy SOPs (Under Development) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Library VCWRF Turbine Building 	<ul style="list-style-type: none"> Heat recovery from gas turbines 	<ul style="list-style-type: none"> Amount of steam produced (lbs) 	<ul style="list-style-type: none"> daily 	<ul style="list-style-type: none"> Air Quality
	Steam turbine blowers		<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Energy SOPs (Under Development) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Library VCWRF Turbine Building 	<ul style="list-style-type: none"> Amount of air going to aeration basins 	<ul style="list-style-type: none"> Amount of air (scfm) 	<ul style="list-style-type: none"> continuous 	<ul style="list-style-type: none"> Air Quality 	

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				Regulatory Documents	Standard Operating Procedures	Other Documents	Location of SOP	Key Operational Parameters	Monitoring Activities			
									Activity			Frequency
Wastewater Treatment and Solids Generation (Cont.)	Plant Air Quality Control	Packed Towers (Caustic Scrubbers)	<ul style="list-style-type: none"> VC Plant Admin VC Plant Operations 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Odor Control Plan (ODOR 01.001) 	<ul style="list-style-type: none"> Air Quality complaint form 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library VCWRF Associated Process Area 	<ul style="list-style-type: none"> H₂S Level of chemicals NaOH Feed Rate Air Quality pH 	<ul style="list-style-type: none"> H₂S Level of chemicals NaOH Feed Rate Air Quality pH 	<ul style="list-style-type: none"> as needed daily daily as needed daily 	<ul style="list-style-type: none"> Air Quality 	
		Biofilters	<ul style="list-style-type: none"> VC Plant Admin VC Plant Operations Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Odor Control Plan (ODOR 01.001) 	<ul style="list-style-type: none"> Air Quality complaint form 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library 	<ul style="list-style-type: none"> Hours of operation H₂S Air Quality Sprinklers Fan capacity Weeds Wood Chips 	<ul style="list-style-type: none"> Hours of operation monitoring H₂S Air Quality Check sprinklers for working condition Fan capacity Weeds Wood Chips 	<ul style="list-style-type: none"> continuously as needed as needed 1/day continuously as needed as need/replaced every 3 to 4 years 	<ul style="list-style-type: none"> Air Quality 	
		Unit Process Enclosures/Covers +Weir Covers and Air Capture for Primary Clarifiers +Covers for Thickeners	<ul style="list-style-type: none"> VC Plant Admin VC Plant Operations Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Process Enclosure Specifications 	<ul style="list-style-type: none"> Air Quality complaint form 	<ul style="list-style-type: none"> VCWRF Operations VCWRF Library Digester SOP 	<ul style="list-style-type: none"> H₂S Air Quality 	<ul style="list-style-type: none"> H₂S 	<ul style="list-style-type: none"> as needed 	<ul style="list-style-type: none"> Air Quality 	
Solids Stabilization, Conditioning, and Handling	Solids Thickening	Asset Management (Village Creek)	<ul style="list-style-type: none"> VC Operations VC Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Maximo work order system 	<ul style="list-style-type: none"> Village Creek SOPs 	<ul style="list-style-type: none"> Maximo (CMMS) VC Library (SOPs) 	<ul style="list-style-type: none"> Predictive Maintenance Preventative Maintenance Corrective Maintenance 	<ul style="list-style-type: none"> Maintenance activities as required per manufacturer specification or VC SOP 	<ul style="list-style-type: none"> As required per manufacturer specification or VC SOP 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution Biosolids Quality Reclaimed Water Quality 	
		Grit Removal	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Grit Removal SOP (GRIT 01.001-06.001) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Digester Office 	<ul style="list-style-type: none"> Flow Weight (pressure) 	<ul style="list-style-type: none"> Flow Weight (pressure) 	<ul style="list-style-type: none"> Continuous Continuous 	<ul style="list-style-type: none"> Air Quality Biosolids Quality 	
		Gravity Thickeners	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Gravity Thickening SOP (THIK 01.001-04.001) Central Laboratory SOP's 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Digester Office Central Laboratory 	<ul style="list-style-type: none"> % Solids in and out % Solids on overflow and underflow Detention Time Flow 	<ul style="list-style-type: none"> % Solids in and out % Solids on overflow and underflow Detention Time Flow 	<ul style="list-style-type: none"> daily daily continuous continuous 	<ul style="list-style-type: none"> Air Quality Biosolids Quality 	
		Dissolved Air Flotation Thickeners (DAFT)	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Dissolved Air Flotation Thickeners SOP (DAFT 01.001-07.001) Central Laboratory SOP's 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Filter Building (1-20 Filters) Central Laboratory 	<ul style="list-style-type: none"> % Solids Air Bottom Sludge-TS Detention Time Float Sludge-TS Flow Polymer Dosage Subnate-TSS pH TSS on Influent 	<ul style="list-style-type: none"> % Solids Air Bottom Sludge-TS Detention Time Float Sludge-TS Flow Polymer Dosage Subnate-TSS pH TSS on Influent 	<ul style="list-style-type: none"> daily 	<ul style="list-style-type: none"> Air Quality Biosolids Quality 	
Gravity Belt Thickeners	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Gravity Belt Thickening SOP (GBTK 01.001-06.001) Central Laboratory SOP's 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Digester Office Central Laboratory 	<ul style="list-style-type: none"> % Solids Detention Time Flow Polymer Dosage 	<ul style="list-style-type: none"> % Solids Detention Time Flow Polymer Dosage 	<ul style="list-style-type: none"> daily continuous Continuous when in operation 	<ul style="list-style-type: none"> Air Quality Biosolids Quality 			

BIOSOLIDS EMS — ELEMENT 3.0

TABLE 3.1 — CRITICAL CONTROL POINTS MASTER TABLE



Biosolids Value Chain	Critical Control Points	Roles & Responsibilities	Operational Controls						Monitoring Activities		Environmental Impacts
			Regulatory Documents	Standard Operating Procedures	Other Documents	Location of SOP	Key Operational Parameters	Activity	Frequency		
Solids Stabilization, Conditioning, and Handling	Solids Thickening (Cont.)	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations VC Maintenance 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Scum Handling SOP (SCUM 01.001-03.001) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Grease Handling Building 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Sludge Quality Biosolids Quality 	
	Secondary Sludge RAS & WAS	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Secondary Treatment SOP (SECY 01.001, 04.001-05.001)* Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Central Laboratory Filter Building (1-20 Filters), SO₂ Building 	<ul style="list-style-type: none"> Solids capture (95% min.) TS for both RAS and WAS 	<ul style="list-style-type: none"> Solids capture (95% min.) TS 	<ul style="list-style-type: none"> daily-calculated 3/wk. 	<ul style="list-style-type: none"> Air Quality Biosolids Quality 	
	Blend Tank	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Digestion SOP (DIGR 03.001) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Central Laboratory Digester Office 	<ul style="list-style-type: none"> Flow (Primary and Secondary) Max. Height Level Mixing Depth TS VTS pH Alkalinity Volatile Acids 	<ul style="list-style-type: none"> Flow Max. Height Level Mixing Depth TS VTS pH Alkalinity Volatile Acids 	<ul style="list-style-type: none"> continuous continuous continuous daily daily 1/week 1/week 1/week 	<ul style="list-style-type: none"> Air Quality Biosolids Quality 	
	Primary Sludge Pumps	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Primary Clarification SOP (PRIM 03.001) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Central Laboratory Headworks/Primary Office 	<ul style="list-style-type: none"> Sludge solids content measurement Sludge blanket TS VTS pH TSS 	<ul style="list-style-type: none"> Sludge solids content measurement Sludge blanket TS VTS pH TSS 	<ul style="list-style-type: none"> continuous 2/shift daily daily daily daily 	<ul style="list-style-type: none"> Sludge Quality 	
	Anaerobic Digesters	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 40 CFR Part 403 	<ul style="list-style-type: none"> Digestion SOP (DIGR 01.001, 02.001) Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Central Laboratory Digester Office 	<ul style="list-style-type: none"> Alkalinity Detention Time Flow Gas Comp. Gas Production Gas Volume Loading (%Solids, % Volatile Solids) pH Temperature Volatile acids Volatile Solids Reduction 	<ul style="list-style-type: none"> Alkalinity Detention Time Flow Gas Comp. Gas Production Gas Volume Loading -%Solids, % Volatile Solids pH Temperature Volatile acids Volatile Solids Reduction 	<ul style="list-style-type: none"> continuous 1/month continuous continuous 1/week 1/week continuous 1/week 1/week 1/week 	<ul style="list-style-type: none"> Air Quality Sludge Quality Biosolids Quality 	
	Digested Sludge Pumping	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations Central Laboratory 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Digestion SOP (DIGR 01.001, 07.001) Regulatory Requirements Central Laboratory SOPs 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Central Laboratory Digester Office, Filter Building (Filters 1-20) 	<ul style="list-style-type: none"> Flow %Solids % Volatile Solids Toxicity Characteristic Leaching Procedure (TCLP) pH Volatile Acids Alkalinity 	<ul style="list-style-type: none"> Flow %Solids % Volatile Solids TCLP pH Volatile acids Alkalinity 	<ul style="list-style-type: none"> Continuous 1/week 1/week annually 1/week 1/week 1/week 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution 	
	Co-digestion	<ul style="list-style-type: none"> VC Plant Admin VC Wastewater Operations 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Digestion SOP (DIGR 03.004) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Wastewater Operations VCWRF Library Digester Office 	<ul style="list-style-type: none"> Temperature Tank level Volume Feed rate to digesters 	<ul style="list-style-type: none"> Temperature Tank level Available volume Feed rate 	<ul style="list-style-type: none"> daily 	<ul style="list-style-type: none"> Sludge Quality Biosolids Quality 	
	Volatile Solids Reduction	<ul style="list-style-type: none"> VC Wastewater Operations VC Biosolids Personnel 	<ul style="list-style-type: none"> TPDES Permit 	<ul style="list-style-type: none"> Biosolids SOP (BSLD 08.001) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> VCWRF Library 	<ul style="list-style-type: none"> %TS %VS Sludge Flow Co-Digestion Flow 	<ul style="list-style-type: none"> %TS %VS Sludge Flow Co-Digestion Flow 	<ul style="list-style-type: none"> 2/week 	<ul style="list-style-type: none"> Biosolids Quality Vector Attraction Reduction 	

BIOSOLIDS EMS — ELEMENT 3.0

TABLE 3.1 — CRITICAL CONTROL POINTS MASTER TABLE



Biosolids Value Chain	Critical Control Points	Roles & Responsibilities	Operational Controls						Environmental Impacts	
			Regulatory Documents	Standard Operating Procedures	Other Documents	Location of SOP	Key Operational Parameters	Monitoring Activities		
								Activity	Frequency	
Solids Dewatering	0.5 MG Holding Tank 0.8 MG Holding Tank (Contractor Operation)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• Liquid Biosolids Storage Tank SOP • 5 MG Tank Manual (draft)	• O&M Manual	• SOL Office	• Tank Level • Mixing • Flow Rate	• Monitor tank level	• Every 2 hours	• Biosolids Quality • Air Quality
	5 MG Storage Tank (Contractor Operations)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• 5 MG Tank Manual (draft)	• O&M Manual • Liquid Biosolids Storage Tank SOP	• SOL Office	• Tank Level • Mixing • Flow Rate	• Monitor tank level	• Every 2 hours	• Biosolids Quality • Air Quality
	Landia Airjets (Contractor Operations)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• Landia Airjet Manual (draft)	• O&M Manual • Liquid Biosolids Storage Tank SOP • 5 MG Tank Manual	• SOL Office	• Mixing • Aeration • Odor Performance (land application)	• Airjets are operational • Check for leaks	• Every 2 hours	• Biosolids Quality • Air Quality
	Belt Press (Contractor Operations)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• O&M Manual • Polymer System SOPs • Biosolids Belt Press SOPs (presses #1 thru #4, Press #5, Press #6) • Power Outage SOP	• Belt press personnel training • Personnel training records • Percent solids recordkeeping	• SOL Office	• Solids testing by oven	• Solids testing by oven	• daily	• Biosolids Quality
	Filtrate Return Pumps (Contractor Operations)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• O&M Manual	• Pond Management SOP (being developed)	• SOL Office	• Pumping capacity • Pond levels	• Pumps are operational	• Every 6 hours	• Surface and groundwater pollution
	Reclaim Water (Contractor Operation)	• Biosolids Contractor	• Biosolids Contract • Reclaim Authorization R10494-013 • 30 TAC Chapter 210	• O&M Manual	• N/A	• SOL Office	• Flow • psi	• Verify flow • Verify PSI	• Every 6 hours	• Surface and groundwater pollution
	Lime Stabilization (Contractor Operations)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• O&M Manual • Lime stabilization SOP	• Lime use records • pH sampling schedule • pH testing records	• SOL Office	• pH • Hold Times	• pH	• daily	• Pathogen Control • Surface and Groundwater Pollution • Air Quality • Lime Spill
	Biosolids Monitoring (Contractor Operations)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• Class AB Monitoring, Sampling, & Analysis SOP	• Synagro COC	• SOL Office	• Proper sampling and analytical techniques	Sampling for: • Enteric Virus • Helminth Ova • Fecal • Metals • PCBs • TCLP • Odor Monitoring	• Enteric Virus (1/mo) • Helminth Ova (1/mo) • Fecal (1/mo) • Metals (1/mo) • PCBs (1/yr) • TCLP (1/yr) • Odor Monitoring (daily)	• Biosolids Quality • Air Quality
	Ferric Chloride Dosing Station (Contractor Operations)	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• Ferric Chloride System SOP (draft)	• N/A	• SOL Office	• Dosage • Ferric Tank Level • Percent Solids • Struvite Prevention	• Dosage (gallons/1,000 gallons sludge) • Tank Level	• Every 12 hours	• Biosolids Quality • Air Quality
	Chlorine Dioxide Dosing Station	• VC Biosolids Program • Biosolids Contractor	• TPDES Permit • Biosolids Contract	• ClO2 Generator alarm list & troubleshooting guide for Village Creek rev.01 3-12-2019	• N/A	• Pretreatment Coordinator's Office	• Dosage • Odor Performance (land application) • Tank levels of Purate and H ₂ SO ₄	• Dosage (ppm) • Tank levels of Purate and H ₂ SO ₄	• Daily	• Biosolids Quality • Pathogen Control • Air Quality
	Concrete Biosolids Storage Pad and Four Acre Long-Term Storage Pad	• Biosolids Contractor	• TPDES Permit • Biosolids Contract	• Storage Pad Management SOP	• Adverse Weather & Alternative Plan	• SOL Office	• Storage Capacity • pH monitoring	• Verify available storage (daily) • pH testing	• Daily	• Air Quality • Vector Attraction • Surface and Groundwater Pollution
Drying Beds (Emergency Use)	• VC Operations • VC Biosolids Program	• TPDES Permit	• Sludge Diversion to Drying Bed SOP DBDS 01.001	• N/A	• VCWRF Library	•	• n/a	• n/a	• Air Quality • Vector Attraction • Surface and Groundwater Pollution	

BIOSOLIDS EMS — ELEMENT 3.0

TABLE 3.1 — CRITICAL CONTROL POINTS MASTER TABLE



Biosolids Value Chain	Critical Control Points		Roles & Responsibilities	Operational Controls						Environmental Impacts	
				Regulatory Documents	Standard Operating Procedures	Other Documents	Location of SOP	Key Operational Parameters	Monitoring Activities		
									Activity		Frequency
Solids Transportation and Handling	Biosolids Transportation & Staging (cont.)	Truck Loading (Contractor Operations)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Loader SOP??? Tare Weights SOP?? Load Ticker SOP?? Transportation Truck Routing SOP (includes truck washing activities) 	<ul style="list-style-type: none"> Truck Scale Calibration Certificate Tare weights schedule Tare weights records Load ticket records Front end loader operator training Driver training records 	<ul style="list-style-type: none"> SOL Office 	<ul style="list-style-type: none"> Driver/Operator load and tailgate inspection Truck scale calibration Truck tare weights Weather Tonnage loaded into truck Other?? 	<ul style="list-style-type: none"> Driver/Operator load and tailgate inspection Truck scale calibration Truck tare weights Weather Tonnage loaded into truck Other?? 	<ul style="list-style-type: none"> each load quarterly quarterly each load each load 	<ul style="list-style-type: none"> Road damage due to overweight trucks Biosolids tracked on roads
		Transportation (Contractor Operation)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract DOT/TEXDOT 	<ul style="list-style-type: none"> Transportation Truck Routing SOP Accident and Spill Response Plan Adverse Weather & Alternative Plan Others?? 	<ul style="list-style-type: none"> Vehicle maintenance records?? Driver training record Manifest records Others?? 	<ul style="list-style-type: none"> SOL Office 	<ul style="list-style-type: none"> Destination & travel route Tonnage hauled Weather and traffic conditions 	<ul style="list-style-type: none"> Manifest records Weather and traffic conditions 	<ul style="list-style-type: none"> Each load Daily 	<ul style="list-style-type: none"> Traffic Accidents Biosolids Spills
	Truck Unloading (Contractor Operation)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Fort Worth TX Class AB Buffer Zones & Operations Staff Instructions Form 	<ul style="list-style-type: none"> Driver training records Staging records 	<ul style="list-style-type: none"> SOP Office 	<ul style="list-style-type: none"> Staging location Cleaning of trucks 	<ul style="list-style-type: none"> Site Inspection 	<ul style="list-style-type: none"> Daily 	<ul style="list-style-type: none"> Truck tipping over Air Quality Surface and Groundwater Pollution 	
	Spill Prevention/Response (Contractor Operation)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Accident and Spill Response Plan 	<ul style="list-style-type: none"> SOL Spill Prevention Plan 	<ul style="list-style-type: none"> SOL Office Trucks 	<ul style="list-style-type: none"> Driver/loader observation 	<ul style="list-style-type: none"> Driver/loader observation 	<ul style="list-style-type: none"> Each load 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution 	
	Site Selection (Contractor Operation)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Site Selection & Regulatory Agency Notification SOP Land Application & Scheduling SOP Pre-Operating Checklist SOP 	<ul style="list-style-type: none"> Texas Class AB Pre-Operating Checklist Form Other?? 	<ul style="list-style-type: none"> SOL Office 	<ul style="list-style-type: none"> Available Acreage Applicable setbacks Nearby Odor Receptors Access roads 	<ul style="list-style-type: none"> Verifying field suitability for land application 	<ul style="list-style-type: none"> When requested 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution 	
	Staging at Land Application Site (Contractor Operation)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Fort Worth TX Class AB Buffer Zones & Operations Staff Instructions Form Land Application & Scheduling SOP Pre-Operating Checklist SOP 	<ul style="list-style-type: none"> Daily Operations Log Biosolids Staging Log Texas Class AB Pre-Operating Checklist Form 	<ul style="list-style-type: none"> Land Application Site?? SOL Office 	<ul style="list-style-type: none"> Staging location odors 	<ul style="list-style-type: none"> Site Inspection 	<ul style="list-style-type: none"> When used 	<ul style="list-style-type: none"> Air Quality Surface and Groundwater Pollution 	
Biosolids Use and Disposal Alternatives (cont.)	Agricultural Land Application (cont.)	Field Operations (Contractor Operation)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Fort Worth TX Class AB Buffer Zones & Operations Staff Instructions Form Land Application & Scheduling SOP Odor Control & Complaint Procedures SOP Pre-Operating Checklist SOP 	<ul style="list-style-type: none"> Texas Class AB Pre-Operating Checklist Form Daily Operations Log Monthly Residuals Application Summary Form Biosolids Staging Log Project Site Daily Odor Monitoring Log Land Application Daily Odor Log Complaint Log 	<ul style="list-style-type: none"> Land Application Site SOL Office 	<ul style="list-style-type: none"> Best Management Practices (setbacks, slope of field, etc) Odors 	<ul style="list-style-type: none"> Inspections (Synagro/City) Odor monitoring 	<ul style="list-style-type: none"> 1/day 1/day 	<ul style="list-style-type: none"> Air quality surface and groundwater pollution exceeding loading rate exceeding metals loading rate
		Nutrient Management (Contractor Operation)	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Land Application & Scheduling SOP Pre-Operating Checklist SOP 	<ul style="list-style-type: none"> Texas Class AB Pre-Operating Checklist Form 	<ul style="list-style-type: none"> Land Application Site SOL Office 	<ul style="list-style-type: none"> Agronomic Rate 	<ul style="list-style-type: none"> Agronomic Rate Calculation 	<ul style="list-style-type: none"> Each site 	<ul style="list-style-type: none"> Exceeding agronomic loading rate Air quality surface and groundwater pollution poor crop or forage quality human and animal contact with pathogens
	Landfill Disposal of Off-Spec Biosolids	Landfilling	<ul style="list-style-type: none"> Biosolids Contractor 	<ul style="list-style-type: none"> TPDES Permit Biosolids Contract 	<ul style="list-style-type: none"> Landfill disposal SOP 	<ul style="list-style-type: none"> Landfill profile Truck weight tickets manifests 	<ul style="list-style-type: none"> SOL Office 	<ul style="list-style-type: none"> Truck weights 	<ul style="list-style-type: none"> Truck weights-each truckload TCLP Test 	<ul style="list-style-type: none"> When trucks used Annual TCLP Test 	<ul style="list-style-type: none"> Air quality Reduce landfill capacity