



Central Davis Sewer District EMS Manual

This is not a controlled document. The controlled electronic manual is in the District Manager's office.

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View the Document Control Log for a Summary of Revisions

Note: The revision box will show only revisions that affect that specific element. Minor word changes are not included as revisions.

Central Davis Sewer District
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Element 1: Central Davis Sewer District EMS Manual

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

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Date last revised: *November 09, 2018*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District provides wastewater treatment to the cities of Kaysville, Farmington, and Fruit Heights in Davis County, Utah. Wastewater treatment meets state secondary treatment requirements and UPDES requirements. Two valuable end products result from these treatment processes: highly treated effluent and biosolids. Effluent is discharged to Farmington Bay arm of the Great Salt Lake. Biosolids are recycled through direct land application of Class B biosolids on lands owned by the District immediately surrounding the District's wastewater treatment plant and through the distribution and marketing of composted Class A biosolids. Biosolids may also be landfilled when needed for either emergency operations, odor control or lack of appropriate bulking agents.

Central Davis Sewer District began land applying biosolids in the late 1980's on District farmlands at agronomic rates with alfalfa hay and sod as the primary crops. In about 1996 the District initiated a Class A composting process with sales of the compost as the primary end point. The District has an aggressive odor control program and public relations process. In 2004 Central Davis Sewer District was awarded the National EPA Biosolids Operations and Maintenance Excellence Award.

Biosolids land application and sales are accomplished using District employees with all operations, including farming under direct control of the District Manager. In House and Contract laboratories are used to evaluate biosolids quality.

Central Davis Sewer District biosolids program has undergone few changes over its lifetime. Central Davis Sewer District modifies its biosolids program as needed in response to factors such as new state or federal regulations and community needs.

Central Davis Sewer District is committed to proactively addressing the challenges that will be encountered with respect to biosolids management in the future, especially odor management and public acceptance. We are committed to continually improving all aspects of our biosolids management program. On December 16, 2002 Central Davis Sewer District signed a Letter of Understanding with the National Biosolids Partnership (NBP) in which Central Davis Sewer District agreed to become an NBP EMS agency with the intent to achieve national recognition for its excellent biosolids management program. Central Davis Sewer District specifically committed to meet the national requirements for an excellent biosolids program; committed to implement an Environmental Management System and committed to the NBP's National Code of Good Practice.

This EMS manual describes Central Davis Sewer District Environmental Management System for Biosolids.

Procedure

1. The EMS manual is intended to be a “living” document. Revisions are expected as new information is obtained, changes to existing systems occur, and as experience is gained in managing the biosolids program.
2. The District Manager will revise the EMS manual on an “as needed” basis.
3. The District Manager will inform all staff of any revisions to the biosolids program.
4. The District Manager will provide notification of significant changes to the biosolids program to interested parties such as the Utah Division of Water Quality and EPA, Region VIII in accordance with the District’s UPDES Permit UT0020974. Public education of these changes will be accomplished through public Board Meetings and press releases.
5. Contractors, when used by the District shall be divided into two classes. The type of class determines the requirements the District imposes on the contractor. The First Class is for a contractor who has complete responsibility for a part of the biosolids value chain. This type of contractor will act independent in executing their role and responsibility and will be independent of direct District day to day supervision. First Class contractors will be required to have their own standard operating procedures, records management and document control, emergency response plans and procedures and other activities required by this EMS manual. Second Class contractors are contractor who are under the command and control of District personnel. Second Class contractors will be trained, as needed, in District procedures and be aware of District emergency response plan. Second Class contractor will generally be dependent upon District staff for supervision and direction. Currently the District has no First or Second Class contractors. Second Class contractors will be informed of all needed EMS information by letter from the District Manager.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Added Landfilling	7/21/2015
10	Block Header changed from “ reviewed” to “ revised”	11/09/2018

Element 2: Biosolids Management Policy

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Date last revised: *November 9, 2018*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District formally adopted the following Biosolids Management Policy on *July 13, 2006*. The policy establishes guiding principles for Central Davis Sewer District biosolids management program and the EMS.

Biosolids Management Policy Statement

Central Davis Sewer District will pursue beneficial biosolids options that protect human health and environmental quality, are cost effective, and provide flexibility with respect to end use.

Central Davis Sewer District will implement this policy by:

- Following the *Code of Good Practice* for biosolids (shown at the end of this Element) developed by the National Biosolids Partnership.
- Periodically evaluating beneficial reuse options that provide potential for improved efficiencies or better meet the needs of the community.
- Providing adequate training opportunities to personnel associated with the biosolids management programs.

Procedure

1. The District Manager is responsible for ensuring that the biosolids management policy is implemented and communicated to all staff involved in biosolids operations and other interested parties, using one or more of the communication tools listed under the Communication procedure.
2. Methods used to accomplish Procedure 1 include, but are not limited to the following:
 - a. Meeting with District staff and elected management to discuss how the policy guides actions of the District and others involved in the biosolids program.
 - b. communications with interested parties as addressed in the Communications procedure.
3. If revisions to the current policy statement are needed because of changing conditions, the District Manager will notify all employees involved of the issue and discuss suggested changes.

4. The District Manager will bring the revisions to the Board of Trustees for consideration. Recommended revisions to the policy may also be included in the annual EMS Management Review.
5. If revisions to the policy are approved by the Board of Trustees, the District Manager will communicate the revised policy as per Step 1 above. The District Manager will also replace the revised policy in the EMS Manual.
6. Documentation of communication with employees will be maintained in the Safety Training Log as these two training functions may be co-mingled from time to time.
7. The District Manager shall communicate the District's Biosolids Management Policy as well as the District's mission and a copy of the NBP Code of Good Practice to all First and Second Class contractors.

Code of Good Practice

The Code of Good Practice ("the Code") is a broad framework of goals and commitments to guide the production, management, transportation, storage, and use or disposal of biosolids -- in short, a comprehensive environmental management system (EMS) for biosolids. Those who embrace the Code and participate in the EMS commit to "do the right thing." Code subscribers and EMS participants pledge to uphold the following principles of conduct:

COMPLIANCE: To commit to compliance with all applicable federal, state, and local requirements regarding production at the wastewater treatment facility, and management, transportation, storage, and use or disposal of biosolids away from the facility.

PRODUCT: To provide biosolids that meet the applicable standards for their intended use or disposal.

ENVIRONMENTAL MANAGEMENT SYSTEM: To develop an environmental management system for biosolids that includes a method of independent third-party verification to ensure effective ongoing biosolids operations.

QUALITY MONITORING: To enhance the monitoring of biosolids production and management practices.

QUALITY PRACTICES: To require good housekeeping practices for biosolids production, processing, transport, and storage, and during final use or disposal operations.

CONTINGENCY AND EMERGENCY RESPONSE PLANS: To develop response plans for unanticipated events such as inclement weather, spills, and equipment malfunctions.

SUSTAINABLE MANAGEMENT PRACTICES AND OPERATIONS: To enhance the environment by committing to sustainable, environmentally acceptable biosolids management practices and operations through an environmental management system.

PREVENTIVE MAINTENANCE: To prepare and implement a plan for preventive maintenance for equipment used to manage biosolids and

wastewater solids.

CONTINUAL IMPROVEMENT: To seek continual improvement in all aspects of biosolids management.

COMMUNICATION: To provide methods of effective communication with gatekeepers, stakeholders, and interested citizens regarding the key elements of each environmental management system, including information relative to system performance.

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1-6	Various historic actions prior to 10/9/2011	5/11
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Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Environmental Outcomes

Biosolids Value Chain (Operational Area)	Critical Control Points (Key Processes)	Operational Controls (Control Points)	Standard Operating Procedures (SOPs)	Monitoring & Measurements	Potential Environmental
Wastewater Collection and Pretreatment	Industrial Users	Industrial discharge permit	Should any IU's which may impact biosolids quality move into the District, appropriate SOP's will be developed	These items will be included as part of the Industrial Pretreatment Program of the District. The District receives monthly reports on business licenses issued and these are reviewed for potential impacts to the system and biosolids quality.	There are no significant Industrial Users in the CSDS Service area. Currently only compatible pollutants are received from any commercial users. The District treatment facility is capable of meeting current permits limits. Should discharge limits change, even compatible pollutants may be re-evaluated.
	Commercial Users	Commercial discharge permit	Permits issued in accordance with the Industrial Pretreatment Program		
Wastewater Treatment and Solids Generation	Solids screening / grit collection	Screen cleaning and maintenance	General Operating practices – SOP #006	Headwork operations are a part of normal operations and are visually monitored daily. System employs screening and grinding to reduce visible pollutants.	<ul style="list-style-type: none"> • Plastics in biosolids • Odors • From an environmental health aspect, the headwork area has a high potential for disease transmission. Proper PPE are needed in this area. • VOC that may be illegally dumped in the sewer would volatile in this area of the treatment facility.
	Scum blanket	Blanket thickness	General Operating practices – SOP #006		
	Primary treatment	WAS line maintenance	General Operating practices – SOP #006		
	Secondary treatment	WAS line maintenance	General Operating practices – SOP #006		
Anaerobic Digestion	Temperature (heating)	Temperature (heating)	Temperature recorded daily on operating report. – SOP #001	Documentation maintained in order to comply with requirements found in 40 CFR Part 503.	<ul style="list-style-type: none"> • Odors • Attraction of vectors • Incomplete destruction of pathogens • Failure to comply with regulations • Air impacts from the biosolids treatment process are not currently significant. Screening operations for compost may cause bacteria or fungus to become air borne during this activity. Proper PPE should be worn and biosolids loading should be minimized during screening activities. • Phosphorus enriched runoff from the land application site is considered a possible offsite pollutant impact. Since runoff has this potential, dikes were established at the low end of each land application zone to prevent runoff from occurring. The diking system will contain the 500 year storm. • Polymer dosing may unduly waste product unless the thickening process is monitored closely. Electronic dose control system has been implemented to achieve optimal dosing. • All land application has the potential to overload nutrients to the soil. Because of this potential, soils should be closely monitored to ensure over-application does not occur.
		Detention time (flow control)	Calcs revised and recorded when pump rates changed - SOP #001		
		Digester mixing procedure	SOP # 7 – Digester Mixing		
		"End product" permits	Permitting included in Permit UT0020974		
	Composting	Quality of add mix of bulking agent	SOP #2 For Class A and SOP #3 for Class B	Anaerobic digestion, including mixing, are monitored daily in accordance with the District UPDES permit and 40 CFR part 503. Composting operations are monitored on a batch basis throughout the year. Final product quality control is needed to ensure public acceptance.	
		Mixture consistency	SOP #2 For Class A and SOP #3 for Class B		
		Mixture temperature	SOP #2 For Class A and SOP #3 for Class B		
		Mixture turning	SOP #2 For Class A and SOP #3 for Class B		
		Mixture detention time	SOP #2 For Class A and SOP #3 for Class B		
		"End product" permits	SOP #2 For Class A and SOP #3 for Class B		
	Dewatering	Location of facility	SOP #8 – Belt Press/Thickener Operations SOP #17-Screw Press		
		"End product" permits	Included in UPDES Permit		
	Thickening	Location of facility	SOP #8 – Belt Press/Thickener Operations SOP #17-Screw Press		
"End product" permits		Included in UPDES Permit			

Table 3.1: Critical Control Points, Operational Controls, SOPs, Monitoring/Measurements and Environmental Outcomes

Biosolids Storage, Loading and Transportation	Solids storage	Site location	Not Required – Process not used.	Biosolids are not stored for later application and transport of product is within the treatment plant. Any potential spill within the treatment facility will either be returned to the headwork for treatment or will wash into the land application site.	<ul style="list-style-type: none"> • Spills • Roadway accidents • Truck noise and dust • Odors • If offsite treatment were needed, plans would have to be prepared to ensure no additional environmental impact. • Noise issues with any proposed offsite transportation would have to be evaluated closely to prevent to the nearby residential developments.
		Distance to neighbors	Not Required – Process not used.		
		Loading procedures	Not Critical to end quality of biosolids		
		Emergency response procedures	Not Critical to end quality of biosolids – all at treatment plant site		
	Transportation	Truck cover	Not Required – Process not used.		
		Routing requirements	Not Required – Process not used.		
		Truck cleaning	Not Required – Process not used.		
Biosolids End Use, Disposal or Beneficial Reuse	Land Application Site Selection	State Regulations	State does not permit sites – Site owned by District	<p>1. Any beneficial use should be monitored for public acceptance. This includes odors from land applied anaerobic biosolids or poor stabilization of finished compost.</p> <p>2. The SOP's contain appropriate documentation procedures to meet permit limits and guidelines.</p> <p>3. Compost sales are governed by district policy. Public feedback is important to ensure the compost is positively accepted.</p>	<p>Negative impacts on groundwater or surface water resources may occur is biosolids are not appropriately applied.</p> <p>When used appropriately, biosolids provide a positive impact on soils where application occurs.</p> <p>Site restrictions for land application of Class B biosolids need to be followed to prevent unauthorized access and potential for disease transmission.</p> <p>The District Board policy is to sell compost for an economical fee in order to encourage reuse. This also minimizes resources needed to market the product.</p> <p>Odors have the potential to destroy public acceptance. All effort should be taken to reduce and eliminate offensive smells.</p>
			Not Required – Process not used.		
	Location of truck unloading (land application)	Truck loading/unloading procedures	Not Required – Process not used.		
	Depth to Groundwater (land application)	Land application site selection procedures	SOP #4 for Land Application documentation process		
	Agronomic Rate (land application)	State Regulations	SOP #4 for Land Application documentation process		
	Perimeter of application site (land application)	State Regulations	SOP #4 for Land Application documentation process		
	Set back distance from surface water/neighbors (land application)	State/District Regulations	SOP #4 for Land Application documentation process		
	Class A/EQ product sale and distribution	Product and packaging specifications	SOP #5 Sale of Compost		
		Product application rates	SOP #5 Sale of Compost		
		Product transportation requirements	SOP #5 Sale of Compost		
	"End product" permits	Not Required			

Element 3: Critical Control Points

Created/Approved: *July 13, 2006*

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By: *Jill S. Jones*

Introduction

Critical Control Points (or *key processes*) are those biosolids management activities that are under the direct control or influence of Central Davis Sewer District that have the potential, if not managed effectively, to create significant changes to the quality of its biosolids and could create negative environmental impacts. Critical control points include activities that can affect the quality of biosolids, how biosolids are managed, or how Central Davis Sewer District biosolids program is viewed by the general public and regulators.

Table 3.1 identifies Central Davis Sewer District critical control points that need to be managed to avoid problems with the biosolids quality and potential environmental impacts. The critical control points were selected by Central Davis Sewer District staff and the District Manager after reviewing information contained in the [National Manual of Good Practice](#).

Central Davis Sewer District manages its biosolids to:

- meet the regulatory requirements for metal concentrations for exceptional quality biosolids
- meet the regulatory requirements for pathogen reduction for Class B land application and Class A distribution and management except when landfilled
- maintain minimal content for plastics and debris in the biosolids
- produce products that do not create objectionable odors.

Table 3.1 also contains information on operational controls and monitoring/measurement activities.

Procedure

The following procedure will be used to review and update the selection of critical control points:

1. Central Davis Sewer District Manager will review information in Table 3.1 on an annual basis, when there are regulatory changes or whenever major operational changes occur. The annual review will be conducted by February 28th each year.
2. Revisions to Table 3.1 (if any) will be documented in writing by the Manager of Central Davis Sewer District, who will then be responsible for ensuring that any necessary changes are made to Table 3.1 in the EMS manual. At a minimum, documentation will occur through notation in the annual biosolids program report.

3. If revisions to the critical control points are made by the District Manager, information related to roles/responsibilities, operational control monitoring/measurement and any other relevant areas of the EMS (including potential environmental impacts listed in Table 3.1) will also be reviewed and modified as appropriate. Documentation will be consistent with the approach in Procedure 2 above.
4. Following an operational change that requires revisions to the critical control points or their associated environmental impacts, the District Manager will inform the third-party verification auditor in writing of the changes. This may also be done by e-mail.
5. General operating practices, daily operating duties, and preventative maintenance activities are not specifically identified as Critical Control Practices. None the less, these activities are important to the overall operation of a wastewater treatment facility. Documentation of completion of these activities, where needed for accurate records is contained in the preventative maintenance system. No additional documentation needed. SOP #006 discusses these activities.

NOTE: THAT ANY CRITICAL CONTROL POINTS OR OPERATIONAL CONTROLS IDENTIFIED IN APPENDIX OF THE MBP'S NATIONAL MANUAL OF GOOD PRACTICES BUT NOT SHOWN HERE WERE CONSIDERED BUT DETERMINED, THROUGH EXAMINATION OF FACILITY OPERATIONS, TO NOT BE RELEVANT TO THE PROCESSES USED AT THIS FACILITY

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer added	9/29/2012
9	NBP Eliminated from Notification of Changes	10/31/2014
10	Added Landfilling	7/21/2015
11	Block Header changed from " reviewed" to " revised"	11/09/2018
12	Included automatic polymer dosing and SOP#17	10/23/19
9	NBP Eliminated from Notification of Changes	10/31/2014

Element 4: Legal and Other Requirements

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By: *Jill S. Jones*

Introduction

Identifying existing legal and other requirements that impact the various aspects of Central Davis Sewer District biosolids program is extremely important. Most of the existing requirements are defined by state and federal regulations and most are reflected in Central Davis Sewer District UT 0020974 permit and the Federal Part 503 regulations. However, when new or revised regulations are proposed, Central Davis Sewer District identifies, tracks and assesses the potential effects on the biosolids program.

Procedure

The procedure used by Central Davis Sewer District to identify, track and assess the potential effects of new or revised regulations that may affect District biosolids program is described below.

1. The following sources of information are used as appropriate to identify and track potential changes to regulations:
 - Check with state biosolids coordinator at least annually on an informal basis
 - Attend State sponsored training as offered
 - NACWA Regulatory and Legislative Updates
 - Water Environment Federation Fact Sheets
 - NBP Biosolids Updates
 - Personal contacts with key individuals at local, state and federal agencies
 - Workshop, seminar and technical conference attendance (e.g. Biosolids Symposium, WEFTEC, NACWA)
 - Water Environment Association of Utah biosolids training as offered.
2. The District Manager is responsible for ensuring that Central Davis Sewer District is aware of potential changes to regulations. The District Manager will:
 - a. Identify potential changes to regulations through review of information from various sources identified in Procedure 1 above.
 - b. Evaluate potential effects on Central Davis Sewer District biosolids program.
 - c. Determine the appropriate actions and schedule, including the need to involve other Central Davis Sewer District staff.

3. The following procedure is used to ensure that new legal and other requirements are appropriately communicated and implemented:
 - a. The District Manager will follow Procedure 2 above
 - b. The District Manager will be responsible for communicating new requirements (for example, monitoring and reporting requirements) to District staff for land applied biosolids. The Manager will also be responsible for changing any fact sheet for users of Class A EQ compost.
 - c. The District Manager will make any necessary changes to the EMS manual and related documents.

Table 4.1 identifies legal and other requirements specific to Central Davis Sewer District biosolids program. Central Davis Sewer District UPDES permit contains very specific regulatory and legal requirements. A summary of these requirements is provided in Table 4.2 and detailed information can be found through a direct review of the UT0020974 permit contained in Appendix 1.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Amended to add 2015 UPDES permit.	7/21/2015
10	Block Header changed from “ reviewed” to “ revised”	11/09/2018

Table 4.1: Legal Requirements and Guidance Specific To Central Davis Sewer District Biosolids Land Application Program

Regulation	Brief Description	Hard Copy (if available)
Federal Regulations		
40 CFR Part 503	General Requirements for Biosolids Land Application Including Pathogen Reduction, Vector Attraction Reduction, and Site Restrictions	Available in the Manager’s Office and on the Internet
UPDES Permit - UT0020974		
The UPDES permit contains specific information on compliance with regulatory requirements. It also contains site specific requirements the District must conform to.	<p>The UPDES Permit contains the following sections:</p> <ul style="list-style-type: none"> • Statement of basis • Permit cover sheet • Discharge limitations • Industrial Pretreatment • Biosolids Requirements • Storm Water Requirements • Monitoring requirements • Compliance Responsibilities • General Requirements • Definitions 	<p>The original copy of the permit is contained in the District Manager’s office in the lateral file. A copy is also maintained on the intranet in the NBP EMS Manual.</p> <p>For ease of review, the current copy of the permit is contained in Appendix 1 of this EMS Manual</p> <p>The permit identifies specific standards, limits, reports, records, etc. the facility must meet in order to be in compliance.</p>
State Regulations		
State Code Title 19-5 and State Administrative Code R-317	State Regulations Follow the Federal Guidelines. Permit Requirements Stipulate Compliance with Region VIII Biosolids Guidelines	Code, Regulations and Guidelines Available in the Manager’s Office and on the internet

Table 4.2: UT0020974 Summary of Permit Requirements (Table of Contents)

I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

- A. Description of Discharge Point
- B. Narrative Standard
- C. Specific Limitations and Self-Monitoring Requirements
- D. Reporting of Wastewater Monitoring Results

II. INDUSTRIAL PRETREATMENT PROGRAM

- A. Pretreatment Program Delegation
- B. Program Updates
- C. Annual Report
- D. General and Specific Prohibitions
- E. Categorical Standards
- F. Enforcement Notice
- G. Formal Action
- H. Self-Monitoring and Reporting Requirements
- I. Pretreatment Reporting Requirements.
- J. Self-Monitoring and Reporting Requirements.
- K. Industrial Wastes.

III. BIOSOLIDS REQUIREMENTS

- A. Biosolids Treatment and Disposal
- B. Specific Limitations and Monitoring Requirements
- C. Management Practices of Biosolids
- D. Special Conditions on Biosolids Storage 19
- E. Representative Sampling
- F. Reporting of Monitoring Results 20
- G. Additional Record Keeping Requirements Specific to Biosolids

IV. STORM WATER REQUIREMENTS

- A. Coverage of This Section
- B. Prohibition of Non-Storm Water Discharges
- C. Storm Water Pollution Prevention Plan Requirements
- D. Monitoring and Reporting Requirements

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling
- B. Monitoring Procedures
- C. Penalties for Tampering
- D. Compliance Schedules

- E. Additional Monitoring by the Permittee
- F. Records Contents
- G. Retention of Records
- H. Twenty-four Hour Notice of Noncompliance Reporting
- I. Other Noncompliance Reporting
- J. Inspection and Entry

VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply
- B. Penalties for Violations of Permit Conditions
- C. Need to Halt or Reduce Activity not a Defense
- D. Duty to Mitigate
- E. Proper Operation and Maintenance
- F. Removed Substances
- G. Bypass of Treatment Facilities
- H. Upset Conditions

VII. GENERAL REQUIREMENTS

- A. Planned Changes
- B. Anticipated Noncompliance
- C. Permit Actions
- D. Duty to Reapply
- E. Duty to Provide Information
- F. Other Information
- G. Signatory Requirements
- H. Penalties for Falsification of Reports
- I. Availability of Reports
- J. Oil and Hazardous Substance Liability
- K. Property Rights
- L. Severability
- M. Transfers
- N. State or Federal Laws
- O. Water Quality - Reopener Provision
- P. Biosolids – Reopener Provision
- Q. Toxicity Limitation - Reopener Provision
- R. Storm Water-Reopener Provision

VIII. DEFINITIONS

- A. Wastewater
- B. Biosolids
- C. Storm Water

Element 5: Goals and Objectives

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Date issued: *July 13, 2006*
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By: *Board of Trustees*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District's Biosolids Management Policy states that it "*will pursue beneficial biosolids options that protect human health and environmental quality, are cost effective, and provide flexibility with respect to end use*" by:

- Following the *Code of Good Practice* for biosolids developed by the National Biosolids Partnership.
- Periodically evaluating beneficial reuse and other options, including landfilling as necessary, that provide potential for improved efficiencies or better meet the needs of the community
- Providing adequate training opportunities to personnel associated with the biosolids management programs.

Central Davis Sewer District will set or revise goals to support its policy on an as-needed basis using the following procedure.

Procedure

1. Central Davis Sewer District will set or revise goals and objectives for its biosolids program on an as-needed basis. Any new goals and strategies will be finalized no later than February 28th of each year.
2. The District Manager with approval of the Board of Trustees will draft a set of goals and objectives considering:
 - a. Central Davis Sewer District Biosolids Management Policy
 - b. input (if any) received throughout the year from the general public, regulators, elected officials, and other interested parties
 - c. input from Central Davis Sewer District staffEach goal will include a short statement identifying its benefit to overall biosolids management activities.
3. Goals will be established using SMART criteria (Specific, Measurable, Achievable, Relevant and Time-bounded).
4. Goals and Objectives will be set considering each of the following-- Environmental Performance, Regulatory Compliance, Quality Management Practices and Relations with Interested Parties
5. The District Manager will review and approve goals and objectives; drafts and recommended changes may be proposed by any staff members
6. New or revised goals and objectives will be included in the annual biosolids management program report

7. Goals and objectives will be posted in the District office on the main bulletin board
8. The District Manager will prepare an action plan, as needed to support each goal, consistent with the template shown next, that contains schedules, milestones, and necessary resources
9. The District Manager will be responsible for tracking progress toward each goal on a regular basis.

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**Action Plan and Tracking - 2023
Critical Outcome Indicators**

Goal Number: 1

Outcome Area: Environmental Performance

Goal: The District will compost anaerobic biosolids and cover it during the winter months and determine if times and temperature can be met for the pile as per regulatory code in 40 CFR part 503.32(a)(7)

Objective: The District would like to reduce biosolids sent to the landfill and direct it toward beneficial reuse.

Specific	Measurable	Achievable	Relevant	Time Bound
Measure time and temperature for a covered anaerobic pile to determine if pathogen reduction can be met.	Determine if time and temperature can be met for one anaerobic covered pile.	Budget and Staff time is allocated.	Biosolids Treatment Train	Finish by December 2023

RESOURCES REQUIRED: Staff Time

RESPONSIBLE PARTY: Biosolids Tech. and Biosolids Coordinator

INTERESTED PARTIES INVOLVED: District Staff and Board

INVOLVED:

Milestones	Estimated Completion Date	Actual Completion Date
Create and cover anaerobic compost pile.	October 2023	
Evaluate times and temperature for 3 days as per 40 CFR part 503.32.	November 2023	
Determine next course of action: 1) If pile meets Pathogen Reduction, test for pathogen reduction OR 2) If pile does not meet Pathogen, land apply on fields.	December 2023	

Central Davis Sewer District 2023 Biosolids EMS Goal

Goal Number: 2

Outcome Area: Regulatory Compliance

Goal: Future regulations may require compliance with a 10.0 mg/L total inorganic nitrogen. The District has a multi-tasked goal to determine if this is achievable with its current facilities. In 2023 the District will complete task i as a part of 2023 Biosolid Goal. Below are the tasks that are part of this entire goal:

- i. Evaluate baseline conditions of the oxidation ditch.
- ii. Optimize Oxidation Ditch to achieve nitrification and denitrification.
- iii. Measure and Monitor total inorganic nitrogen data for a year.

Objective: Continuous effluent quality of less than 10.0 mg/L by the end of 2025. This goal is in preparation for any potential total inorganic nitrogen limits.

Action Plan and Tracking - 2023 Critical Outcome Indicators

Goal Number: 2

Outcome Area: Regulatory Compliance

Goal: Future regulations may require compliance with a 10.0 mg/L total inorganic nitrogen. The District has a multi-tasked goal to determine if this is achievable with its current facilities. In 2023 the District will complete task 1 as a part of 2023 Biosolid Goal. Task 1 is establishing baseline conditions for the nutrient levels in the oxidation ditches.

Objective: Continuous effluent quality of less than 10.0 mg/L by the end of 2025. This goal is in preparation for any potential total inorganic nitrogen limits.

Specific	Measurable	Achievable	Relevant	Time Bound
Establish baseline for nutrient in the oxidation ditches.	Gather 20 days of data to establish baseline nutrient levels in the oxidation ditches.	Budget and staff time has been allocated.	Regulatory Compliance is a part of the biosolids treatment train.	December 2023

RESOURCES REQUIRED: Budget and staff time has been allocated

RESPONSIBLE PARTY: The District intern and Management

INTERESTED PARTIES INVOLVED: Staff and District Board

Milestones	Estimated Completion Date	Actual Completion Date
Establish a scope of work for the baseline monitoring	March 2023	
Conduct Study to establish baseline monitoring	July 2023	
Generate a report for the baseline monitoring	November 2023	

Action Plan and Tracking - 2023

Critical Outcome Indicators

Goal Number: 3

Outcome Area: Relations with Interested Parties

Goal: Educate District Citizens on the District's treatment train and biosolids treatment train process. At least 10 District citizens will be provided the District Plant Guidebook

Objective: Staff will design a plant guidebook that will provide an education on the District's current treatment process. The guidebook will discuss the treatment process at Central Davis and go through the Biosolids treatment train as well. The guidebook will be provided to District citizens, staff, and the Board. In addition, the guidebook will be posted on the District website.

Specific	Measurable	Achievable	Relevant	Time Bound
Design a Plant Guidebook, that discusses the treatment train process and biosolids process.	During plant tours the guidebook will be provided to at least 10 citizens.	Time and Budget will be allocated for the task.	The guidebook provides education on the liquid and biosolids treatment train.	This Goal will be completed by December 2023.

RESOURCES REQUIRED: ~15 Hours of Staff Time

RESPONSIBLE PARTY: The Assistant Manager and Treatment Staff

INTERESTED PARTIES INVOLVED: District Citizens, Staff and Board

Milestones	Estimated Completion Date	Actual Completion Date
Information will be gathered on the liquid and treatment train process. This will involve verifying information with the treatment staff.	March 2023	
Pull all the information together and design a Guidebook.	May 2023	
Have staff review the guidebook for accuracy.	August 2023	
Distribute guidebook to citizens.	October 2023	

Action Plan and Tracking - 2023

Critical Outcome Indicators

Goal Number: 4

Outcome Area: Quality Biosolids Management Practices

Goal: Determine the quantity of PFAS compounds present on District ground.

Objective: The District will take six samples on land applied District grounds; the samples will be taken from four random fields chosen by the Biosolid Coordinator. The six samples will include 1', 2', 3', 4' and 5' cores from the four random fields and the last sample will be a composite sample of 1' cores from 10 out of 13 District owned fields.

Specific	Measurable	Achievable	Relevant	Time Bound
Samples will be gathered from District grounds and tested for 41 PFAS compounds.	Six samples will be gathered from land applied District property and tested for 41 PFAS analytes.	Budget and Staff time has been allocated.	Land application is apart of the Biosolids Treatment Train.	December 2023

RESOURCES REQUIRED: \$5000 Budget allocation for staff time and outside laboratory services.

RESPONSIBLE PARTY: Assistant Manager and Fleet/Maintenance Manager

INTERESTED PARTIES INVOLVED: District citizens, staff and Board

Milestones	Estimated Completion Date	Actual Completion Date
Contact Outside Laboratory for sample containers.	June 2023	
Take samples from land application fields.	November 2023	
Send samples to Outside Laboratory	November 2023	
Analyze Report Received by Lab	December 2023	

Element 6: Public Participation in Planning

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *November 09, 2018*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District has a well managed biosolids program which has been in operation for over twenty years. The public has been generally accepting of the biosolids reuse program. In 1996 the District switched from air drying to composting in response to odor complaints received from nearby neighbors. Again in 2003 the District changed composting operations to reduce odors to accommodate homes being built near the treatment plant. In 2014 the District added aerated static pile operation with the addition of an odor reducing agent as a result of citizen complaints. In addition, an Odor Management plan has been formalized to ensure public acceptance. The District has had enthusiastic support for compost production with most compost being sold to nearby home owners. Word of mouth advertising has resulted in all compost produced being sold annually.

Public confidence continues to remain high but public interest in participating in the planning processes is relatively low unless odors are present. Public hearings on operations are usually poorly attended as long as odor issues are actively addressed. Central Davis Sewer District proactive approach to providing the public with meaningful opportunities to provide input in the planning processes is consistent with legal requirements, the degree of current public interest, historical levels of public involvement and related local circumstances.

Procedure

1. Central Davis Sewer District will use a combination of both formal and informal mechanisms to provide opportunities for the public to participate in the planning process.
2. Where reasonable and appropriate or when legally required, opportunities will be provided for the public to formally participate in planning processes. This determination will generally be made by the District Board. Formal participation opportunities are described below.
3. Opportunities are available for the public to provide input through informal avenues; examples of informal participation opportunities are described below.
4. Information on the third party verification process will be shared with interested parties using any of the formal or informal participation opportunities identified below, as deemed appropriate by the District Manager.
5. Central Davis Sewer District will record and respond to significant input received from interested parties. The odor inquiry/complaint form will be used to record, when possible, the names, addresses, phone numbers and e-mail addresses of interested parties.

Formal participation

1. **Public Hearings-** District policy requires that municipalities hold public hearings when budgetary issues are addressed. All changes to the biosolids program which impact the budget will be addressed in these hearings.
2. **Board Meetings-**The Board of Trustees generally meets monthly, and the meetings are open to the public. Public notice of each meeting is provided in accordance with the Utah Open Meeting laws and a copy of the agenda is published on the Utah Public Notice website, PMN.Utah.gov.
3. **Public informational meetings-**Public meetings are held on selected projects as a means of soliciting input. There are no statutory requirements to hold public informational meetings. District sponsorship of informational meetings is generally determined on a project specific basis based on recommendations from Central Davis Sewer District Board and/or determinations made by the District Manager, with input being solicited from other Central Davis Sewer District staff. Central Davis Sewer District staff also participates in informational meetings held by other parties when requested.

Additional participation opportunities

1. **Informational letters-**Letters are sent to elected officials when appropriate or needed.
2. **Website/Social Media-**Central Davis Sewer District maintains a website that contains information on a variety of Central Davis Sewer District related activities, including Central Davis Sewer District biosolids management program and the EMS program. Included on the web site and social media accounts are contact buttons that people can use to email Central Davis Sewer District with specific questions/comments regarding any aspect of Central Davis Sewer District's operations. To date this has not generated any emails, but it remains available. The District Manager and the contracted web master are responsible for maintaining the website.
3. **Fact sheets-**Fact sheets are prepared by Central Davis Sewer District staff and are used primarily to inform consumers of the methods to use compost.
4. **Information packets-**These packets, when needed, contain general information on the Central Davis Sewer District biosolids program. The District Manager is responsible for distributing these packets, as deemed necessary, which are placed on the doors or mailboxes of homes that are adjacent to wastewater treatment plant, land application site, and composting area. The packets contain contact information for people who are interested in knowing more about Central Davis Sewer District and/or have specific concerns that they would like to voice. Usually, these packets will be distributed electronically.
5. **Newspaper, radio, and television-**Central Davis Sewer District staff work cooperatively with the media and have in many cases been proactive in encouraging stories, articles, etc. Feedback (if any) from these stories/articles can be useful in

helping Central Davis Sewer District make minor adjustments to various aspects of its operations.

6. **Plant tours and presentations to school/community groups**-Central Davis Sewer District provides general plant tours to a wide variety of school/community groups and other interested parties. In addition, presentations (both general and issue specific) are made to these groups, usually in response to their invitations. Feedback received during these presentations has at times been useful in helping Central Davis Sewer District make minor adjustments to various aspects of its operations.
7. **Odor hotline and E-mail** – Central Davis Sewer District has established an odor hotline for odor complaints. The phone number for the hotline is 801-560-0013. The District also has an odor complaint e-mail that is checked frequently for odor complaints. The e-mail address is cdsdodors@gmail.com.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer added	9/29/2012
9	Added Odor Hotline and e-mail	7/21/2015
10	Block Header changed from “ reviewed” to “ revised”	11/09/2018
11	The term social media was added as a form of communication	11/09/2018

Element 7: Roles and Responsibilities

Created/Approved: *July 13, 2006*

By *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *October 24, 2022*

By: *Jill S. Jones*

Introduction

Clearly identifying roles and responsibilities is important to the success of both the biosolids management program and the EMS. Without a clear definition of roles and responsibilities, the likelihood of failing to comply with operational and regulatory requirements significantly increases.

Procedure

1. Roles and responsibilities for various individuals that are specific to the EMS are assigned by the District Manager. They are reviewed and updated as necessary on an annual basis (by February 28th of each year).
2. The District Manager will also review existing roles/responsibilities and revise the tables whenever significant operation changes are made to ensure that roles/responsibilities are appropriately defined
3. General descriptions of the roles/responsibilities for various positions are provided below.

District Manager

The District Manager is responsible for the overall operation of Central Davis Sewer District services. In this capacity she will also act as the EMS program coordinator and biosolids program administrator. All overall administrative duties and changes to programs will be coordinated by this person. The Manager also acts as the Laboratory Director for the District. In this role, the Manager will coordinate labs testing, sampling and transport of samples to contract labs. The Manager may delegate day-to-day responsibility for these functions to the lab supervisor.

Assistant Manager

The Assistant Manager reports directly to the District Manager and provides technical direction to treatment plant personnel. The Assistant Manager will be responsible for overseeing the internal audit and report to the Board about the audit. The Assistant Manager also advises superintendent on operations modifications and ensuring that all aspects of the operation and maintenance of the treatment facility are conducted in an efficient, cost-effective manner and are compliant with existing rules and regulations. Assistant Manager will be responsible for record keeping and report to the Board about the annual Biosolids report, will also perform tasks as assigned from the Manager.

Facility Maintenance Manager

The Facility Maintenance Manager reports to the General Manager and has overall responsibility for maintaining all moving equipment at the wastewater treatment plant and the biosolids reuse program. The Facility Maintenance Manager is responsible for activities related to composting and landfill disposal.

Superintendent

The Superintendent reports to the Assistant Manager and has overall supervisory responsibility for the wastewater treatment plant and the biosolids reuse program. The Superintendent is responsible for coordinating activities within the wastewater treatment operation, for establishing overall direction, determining priorities, and ensuring that all aspects of the operation and maintenance of the treatment facility are conducted in an efficient, cost-effective manner and are compliant with existing rules and regulations.

Operations Staff

The Operations Staff report directly to the Superintendent and are responsible for the day-to-day management of the liquid and solids treatment system and for ensuring compliance with all regulatory reporting requirements. The Operations Staff are responsible for performing the daily operations necessary to ensure that the plant performs in a satisfactory manner and for recording observed information. Operations staff will also generate documents prepared in conjunction with the District Manager which demonstrate all regulatory requirements are met.

Other Roles and Responsibilities

In addition to the specific roles and responsibilities given above, the following shared responsibilities are outlined.

1. *Public Participation and Communication* – Public participation and communication with the public is a shared responsibility of the entire staff. Any staff member may answer calls that include questions or concerns. All staff members are empowered to answer questions if they feel they know the answer. When a difficult question is posed, the call may be referred to the District Manager or the Engineer. Should these individuals not be in the office the call may be forwarded to the Manager's cell phone or a message taken and a return call made. The Manager, Assistant Manager or one of the operators usually does school presentations. Any staff member answering the telephone can field requests for presentations. The Board of Trustees is responsible for approval of formal press releases or public awareness presentations.

2. *Responsibility for Training* – Each employee is responsible to insure they receive adequate continuing education. The Engineer will coordinate maintenance of CEU's for any staff member requesting assistance. Specific training for the EMS program

will be coordinated by the District Manager. This training shall be documented in the Safety Training Log book. Specific EMS Training will be recorded in the EMS Training Log. The District has a tuition reimbursement program for any employees wishing to further their formal education. This shall be documented by receipt from the college and by grades provided at the end of the term. Records on college classes will be maintained in the employee file and are considered protected records. Should the Manager identify specific training employees need, he will coordinate the scheduling to ensure attendance.

3. *Emergency Preparedness and Response* – The District has an emergency response plan that should be followed in the event an emergency occurs. The chain of command is contained in this document and this chain should be followed. Principal responsible staff members will direct resources and emergency activities. The District Manager is responsible for maintenance of the emergency response plan and will update it as the need arises. The level of preparedness for an emergency has been dictated by the Board of Trustees. The Emergency Response Plan contains a detailed Organization Chart for user reference.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Block Header changed from “ reviewed” to “ revised”	11/09/2018
10	Engineering Manager added, and responsibilities were updated	10/23/2019
11	Updated Title for Assistant Manager	10/17/2022
12	Added Role for Facility Maintenance Manager	10/24/2022

Element 8: Training

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *September 1, 2021*

By: *Jill S. Jones*

Introduction

Training is important for ensuring good job performance. Central Davis Sewer District demonstrates the importance it places on training through the following statement:

Central Davis Sewer District is committed to a program of continuous training for all employees. This training includes both operator certification training, safety training, and other training as deemed appropriate by the District Manager. All employees will be provided with sufficient training to meet certification CEU requirements and to ensure a safe work environment. Training will include in-state and out-of-state opportunities and bi-monthly safety meetings as well as the annual safety review course.

Training occurs through a variety of mechanisms, including (but not limited to):

- On the job training
- Review of internal reports
- Review of external publications
- Safety and emergency response training sessions
- Plant meetings
- WEAU sponsored training
- EPA Region VIII pretreatment training
- WEF training courses
- Annual safety training
- In-house training programs
- In-house training videos

Procedure

1. Training is generally based on performance needs as determined by the District Manager and the individual staff members.
2. Formal operator training hours are documented by submission of completed CEU documentation to the State of Utah Operator Certification Coordinator. Official records for operator certification are maintained by the State Division of Water Quality. Safety training records shall be documented in the Safety Training Log maintained in the District conference room. Laboratory training records shall be documented in the Lab Training Log maintained in the Laboratory. In addition, individual employees are encouraged, but not required, to maintain an individual file documenting all of their own training.
3. The District Manager and operations staff will identify relevant training opportunities and, budget permitting, staff will be allowed to attend.

4. New employees will be trained before they are used in the biosolids operation.
5. First Class contractors will be required to develop their own training program to comply with the requirements of this element. Training developed by a First Class contractor should be at least as extensive as the training provided by the District. The District Manager will review the proposed training to ensure adequacy.
6. Second Class contractors shall be involved in District training to the extent that it is needed to insure adequacy of operation. Second Class contractors will be trained by District staff, normally the District Manager or the Superintendent. When a Second Class contractor operates equipment for the District, the contractor shall provide at least verbal information as to the competency of any staff used to operate equipment.

EMS Training

The District Manager is responsible to ensure adequate training for all staff involved in the EMS programs for biosolids. Training opportunities may include:

1. In house training covering the current EMS manual and the published standard operating procedures.
2. NBP Training. Training offered as part of the NBP workshops may be attended, budget permitting.
3. State training relating to standard biosolids program requirements.
4. Visits with other NBP members to see how they manage the program.

Training records associated with NBP training will be maintained by the individual employee and/or will be logged in the safety training log book or the biosolids training log book.

Training Videos

The District has prepared a series of training videos that can be used to assist in operator training. Some of the videos are directly related to the EMS program while others are specific to an individual piece of equipment. A list of such videos can be found in Attachment 1 to Element 8. Those, which are specific to an element or SOP, are referenced in the specific section. Others are for general use.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Added Information on training videos	4/8/2014
10	Block Header changed from “reviewed” to “revised”	11/09/2018
11	Wording change from two day training to annual training	09/01/2021

Element 9: Communication

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *October 17, 2022*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District is committed to proactively communicating information on the District's biosolids operations (including the EMS program) both internally and to interested external individuals and agencies. Public confidence in Central Davis Sewer District biosolids program is high due in part to past responses to issues of concern and wide public acceptance of the District's compost product. Communication efforts are consistent with legal requirements, the degree of current public interest, historical levels of public involvement and related local circumstances. Currently the District's primary communication tool is the District Web Site and Social Media outlets.

Procedure

Identification of interested individuals/organizations

1. The District maintains several lists of individuals interested in Central Davis Sewer District biosolids program and/or EMS related activities. These lists include the Odor Complaint Log, attendance lists in the minutes of Board meetings, and a Telephone Log for specific concerns expressed by the public (not including queries about compost availability or pricing) and are maintained by the District Manager, the Assistant Manager, and the Accountant.
2. Contact information for interested individuals is currently contained in a paper file that is maintained and updated by the District Manager and the Accountant. Individuals are added to this list, if they provide contact details, when they contact Central Davis Sewer District either directly or through the web site.

Specific information about the biosolids program will be available on the District's website. Available information will include

- Management policy including goals and objectives
- EMS Manual
- Annual Biosolids Report including internal audit and management review
- Independent auditor 3rd party verification reports.

Other information available on the web site includes the following:

- Home page with info on the District that is current
- Info on compost and tours
- Board Minutes, presentations, and agendas.
- Information on past awards presented to the District
- Information on the Great Salt Lake Research sponsored by the District
- General treatment plant information
- Map of the collection system and collection system design and installation standards
- Pictorial site tour
- Treatment Flow Diagram
- Other items as posted from time to time

Communication approach

1. The District Manager will have primary responsibility for ensuring effective communications on the part of Central Davis Sewer District as it relates to the biosolids program and the EMS.
2. Information to be made available upon request or through the website to interested parties will include:
 - a. Central Davis Sewer District Biosolids Management Policy.
 - b. Information about legal and other requirements.
 - c. Central Davis Sewer District biosolids program goals and objectives.
 - d. Biosolids Management Performance Reports.
 - e. Information related to independent, third party EMS verification audit reports.
 - f. Other information as listed in the previous section of this element.
3. Specific approaches used to facilitate communication, and the frequency of their use, are left to the discretion of the District Manager. Examples of communication include meetings, emails, letters, reports, tours, presentations, newspaper articles, radio programs and website presentations.
4. Central Davis Sewer District recognizes that communication initiated by interested parties and other individuals may take a wide variety of forms including telephone calls, letters, email, meeting participation, internet contact or other forms. Central Davis Sewer District will give equal weight to all forms of communication.
5. An effort will be made to initially respond to all inquiries or requests for information within 24 hours of receipt of the inquiry or request. Complex inquiries/requests may require additional response time.
 - a. Simple inquiries or requests for information will not be documented. These may include phone calls related to routine questions, and other similar inquiries/requests. The individual responding to an inquiry/request will use their best professional judgment to determine if inquiries/requests fall into this category.
 - b. Significant or detailed requests for information, inquiries or complaints will be documented. These may include detailed requests for information by interested parties, including homeowners, regulators, and elected

officials. Acceptable documentation methods include complaint log, letters, memorandums, email records, telephone logs, written meeting summary, notes to files, or other similar methods.

6. Odor hotline and E-mail – Central Davis Sewer District has established an odor hotline for odor complaints. The phone number for the hotline is 801-560-0013. The District also has an odor complaint e-mail that is checked frequently for odor complaints. The e-mail address is cdsdodors@gmail.com.

When possible, individuals requesting information will be directed to the web site if the information requested is stored there. If the information requested is not stored on the website, the District Manager or the Assistant Manager will endeavor to gather the information requested.

Contractor Communication Requirements

Generally, the District will maintain all communication needs. First and Second Class contractors shall be instructed as to their involvement in communication with other interested parties. Since First Class contractors will control a portion of the biosolids value chain, depending on their independence in making management decisions, they may be required to develop their own communication program. This program must be at least as extensive as that used by the District. Second Class contractors are considered a part of the District day-to-day operation and are a part of the District staff, as far as communications go. It is not anticipated that they will be involved in any communication with outside interested parties. Should they receive any requests for information, these should promptly be forwarded to the District Manager.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer added	9/29/2012
9	Added Odor Hotline and e-mail	7/21/2015
10	Block Header changed from “reviewed” to “revised”	11/09/2018
11	Added Social Media	10/23/2019
12	Wording change on items available on the website	09/27/2021
13	Changed titles from Engineer to Assistant Manager	10/17/2022

Element 10: Operational Controls

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *November 09, 2018*

By: *Jill S. Jones*

Introduction

Operational controls include standard operating procedures, work practices, or other activities that are required to ensure that critical control points are effectively managed.

Elements 3 and 10 are closely linked. Table 3.1 in Element 3 contains detailed documentation of critical control points, related operational controls, standard operating procedures, monitoring and measurements and potential environmental impacts.

Procedures

1. Operational controls have been identified by Central Davis Sewer District Manager and staff, based on consideration of information contained in the NBP *National Manual of Good Practice*, legal and other requirements, and state best practices; as well as personal experience of Central Davis Sewer District staff. Operational controls and related procedures include preventative maintenance procedures, work management systems and any relevant contracted procedures. Current operational controls are found in Table 3.1 of the EMS Manual and are part of the SOP's referenced therein. In addition, SOP #006 discusses the use of daily operating duties in effective facility operations and maintenance.
2. The District has prepared a number of training videos to assist operators in performing routine functions and controlling complex equipment. These videos serve as a reminder to existing operators and as a training function to new operators. These will be reviewed and updated from time to time.
3. The District Manager and staff on an annual basis will review operational controls at the yearly Safety Days. Revisions to any element and SOP will be marked on the revision block. All Elements and SOP's will include in the title block the date the Element/SOP was last reviewed.
4. Significant changes will be documented in writing and will be noted in the annual biosolids program report and updated to the NBP and the 3rd party auditor.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer added and Safety day review of Operational Controls	9/29/2012
9	Block Header changed from “reviewed” to “revised”	11/09/2018

Element 11: Emergency Preparedness & Response

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *November 09, 2018*

By: *Jill S. Jones*

Introduction

Having well-defined Emergency Preparedness and Response procedures are an important aspect of biosolids management activities. These procedures help to minimize the risk associated with unusual or emergency situations that can potentially impact human health or environmental quality.

Procedure

1. Central Davis Sewer District Wastewater Treatment Plant has an Emergency Response Plan which is reviewed yearly and updated as needed. In line with the yearly review a tabletop exercise is conducted on Safety Days annually. General guidelines for an emergency action for biosolids release during transportation can be found in SOP#015. Interim revisions to specific sections of the Emergency Response Program are made on an “as needed” basis. In order to protect the treatment system, specifically the biological treatment process, a specific slug load program section is included in the manual and covers impacts from significant load changes and slug loads. The Slug Load program is a specific part of the pretreatment program and has been developed to respond to an illegal or unusual discharge to the sewer system. Such discharges may be identified by operators at the plant or may be reported to the District by a responsible citizen.
2. The biosolids program, since it is all contained on site, has multiple options for disposal or containment. As such, it is not as critical as those systems which may impact public health such as the collection system. Some of the options which may be considered should a major biosolids system failure occur would be:
 - a. Land application of liquid digested biosolids to overcome dewatering equipment failure using farm piping and onsite pumps.
 - b. Aging of aerobic biosolids in the oxidation ditch and final clarifiers to allow for needed repairs.
 - c. Storage of either anaerobic or aerobic liquid biosolids in the old drying beds.
 - d. Storage of either anaerobic or aerobic liquid biosolids in the composting area.
3. The Emergency Response Program establishes a clear protocol for how a variety of situations should be handled. Copies of the program are provided to each

employee and the master is kept in the District Manager’s office. Important emergency contact information is kept by each phone and in the manual.

4. Testing and training with respect to safety and emergency response procedures is conducted and documented on a periodic basis as determined in the safety program. As a minimum all emergency procedures will be reviewed on Safety Day.

5. All contractors and equipment suppliers regardless of class shall be required to comply with the District Emergency Response Plan. Contractors/equipment suppliers shall be responsible to evacuate their employees to a safe location as deemed appropriate by the entity. The contractor/equipment supplier is not expected to participate in restoration or emergency response activities. Providing the Emergency Response Plan to the contractor/equipment supplier is intended to familiarize them with District what activities will take place.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer added	9/29/2012
9	Block Header changed from “reviewed” to “revised”	11/09/2018
10	Addition of SOP#15 in text and annual tabletop exercise for biosolids release	11/09/2018

Element 12: Documentation, Document Control & Recordkeeping

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *October 26, 2022*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District has established and maintains documentation for the biosolids management program, including the 17 elements of its EMS. Procedures have been established to ensure that biosolids management program documentation is reasonably available, has been created following established document creation protocol, is kept up to date through periodic reviews and revision (if applicable), and is properly documented with effective dates and references to replaced or superseded versions. Record retention periods are also established in the District Records Retention Schedule. As a minimum all documentation shall meet the requirements of 40 CFR Part 503 and the District's UPDES Permit #UT0020974.

Procedure

1. The following documents related to Central Davis Sewer District EMS program, or relevant biosolids management activities are considered "controlled" documents:
 - a. Policy statements
 - b. The EMS Manual
 - c. SOPs
2. A master document is the controlled document and will be maintained electronically and with a hard copy in the District Manager's office.
3. Standard operating procedures and the EMS manual will contain the following document control information:

Created/Approved:

By:

Date issued:

Date last revised:

By:

4. All EMS documents, including policy statements, process control SOPs, equipment maintenance SOPs and all other relevant SOPs and the EMS Manual will be maintained in the District Manager's Office, or at other locations known to the Manager.
5. Version and revision history dates will be maintained for all controlled documents. All documents (Elements and SOP's) will have a revision block and number. Each

Element or SOP will have its own revision number (after Revision 7). The revision log for each Element or SOP will identify changes to that Element or SOP as part of that revision. The front cover of the EMS manual will also state the version of the manual coherent with Elements and SOPs.

6. Record retention periods will be consistent with or longer than the Central Davis Sewer District records retention policy. The District uses the most recent version of the State Archive Office's Utah Municipal General Retention Schedule as applicable to public utilities/wastewater treatment entities. When documents have reached the retention date, the document will be reviewed by the District Manager to determine whether the retention period needs to be extended or the document should be destroyed.
7. Data resulting from monitoring and measurement activities is retained in the operator responsible for records office. This information is retained for a period consistent with the Records retention schedule.
8. The District Manager has sole responsibility for updating/revising the EMS manual to reflect current practices. Minor grammatical edits, links to new or revised documents, etc. are not considered significant changes. Updates/revisions will generally be made in response to one or more of the following:
 - a. Internal audits
 - b. External audits
 - c. Operational changes
 - d. Annual reviews of Critical Control Points, Operational Controls and biosolids program goals and objectives
 - e. Annual Biosolids Management Program Report.
9. All needed Second Class contractors shall have any records generated associated with their work, maintained by District staff.
10. All First Class contractors shall develop a document control and maintenance acceptable to the District.

Document Creation Protocol

Any document created as a part of this EMS manuals shall follow the steps outlined below. Generally the need to create a new document or modify an existing document is based on changed conditions. These new conditions may be identified by staff or the external auditor.

1. Documents identified as needed should be proposed to the District Manager for evaluation. Those deemed to be needed will be carried forward in this process.
2. The District Manager, in consultation with staff and others will draft a document for internal review.

3. If the document does not change the general EMS program, but supplements existing operation, once review and any needed modifications are made, the document will be issued for use with the District Manager’s approval.
4. If the document substantially changes the nature of the EMS program or its operation, the change is proposed to the Board of Trustees for consideration. The Board has final decision power related to the EMS program.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Block Header changed from “reviewed” to “revised”	11/09/2018
10	Intext update: changed reviewed to revised and added version number of EMS manual	11/09/2018
11	Clarified non-substantial changes made by District Manager Language	10/26/2022

Element 13 – Monitoring and Measurement

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *October 26, 2022*

By: *Jill S. Jones*

Introduction

Monitoring and measurement activities conducted by Central Davis Sewer District generally fall into one of the following three categories:

- Activities conducted to demonstrate compliance with legal/regulatory requirements.
- Activities conducted to document performance at critical control and operational control points.
- Activities conducted to track progress toward achieving biosolids program goals and objectives.

The Central Davis Sewer District UPDES Permit identifies monitoring, measurement, and reporting requirements for biosolids by the State Division of Water Quality and/or EPA. Central Davis Sewer District also conducts additional monitoring to measure performance at critical control points. Table 3.1 contains a comprehensive listing of monitoring and measurements as defined by the referenced SOP's. Specifically, the following SOP's contain monitoring and measurement requirements for biosolids:

- SOP #1 – Anaerobic Digestion
- SOP #2 – Class A Composting
- SOP #3 – Class B Composting
- SOP #4 – Land Application of EQ Biosolids

While other SOPs included specific activities, they do not include record keeping activities associated with regulatory compliance. In addition to recordkeeping associated with biosolids, records must also be kept for effluent quality testing. These records are not included in the annual biosolids report, but they are generally described in Table 4.2 and are found in detail in the permit contained in Appendix 1. Monthly/quarterly discharge monitoring reports are found in the District Managers office and are submitted to EPA and the State on a periodic basis.

All records are maintained on paper and may be transcribed, saved into, or scanned to the computer during annual report generation.

Procedure

1. Monitoring and measurement activities will be reviewed by the District Manager on an annual basis (by February 28th) or whenever significant changes in plant processes and/or operations occur. Revisions (if any) to Table 3.1 and associated

SOPs and monitoring/measurement documents will be made by the District Manager.

2. Analytical or instrumentation data is stored in one of three locations in paper format. These locations are:
 - A. The District Manager's Office
 - B. The Onsite Laboratory
 - C. The recording keeping operator's office.
3. Progress towards meeting goals and objectives will be tracked at intervals deemed appropriate by the District Manager. Progress will be noted on the Goals and Objectives Action Plan Template or measured against intermediate milestones.
4. The District Manager will be responsible for making any necessary changes to the EMS manual and supporting material to reflect monitoring and measurement responsibilities as required by rule or permit.
5. Should a contractor/equipment supplier do any monitoring or measurement, a contractor developed monitoring and measurement plan will be developed. Normally, only First Class contractors will have monitoring or measurement activities. Second Class contractors and equipment supplier's records shall be maintained by District staff. Other than for invoicing, Second Class contractors and equipment suppliers will not normally develop records which need to be maintained.

Schedule of Document Locations

The following schedule identifies where documents associated with permit compliance are located. Original records are kept at these locations, although duplicate records may be kept elsewhere.

Table 13-1 – Records Storage Locations

Record Type	Record Location
Laboratory Results from Chemtech Ford Laboratory (BOD, Metals, Chemicals, etc.)	Original reports are kept in the District Manager’s Office in three-ring binders.
Laboratory Results from Richards Laboratory (TS, salmonella, etc.)	Original reports are kept in the District Manager’s Office in three-ring binders.
Laboratory Results from CSDS Onsite Laboratory (TSS, TS, TVS, COD, etc.)	Original bench sheets and daily reports are kept in the Laboratory on clip boards, in the filing cabinet, or in binders in the cupboard.
Daily monitoring of Compost Information	Original records are kept in the office of the Operator responsible for records
Daily digester records and operations records	Digester records are kept in two locations. The current month is stored in the Laboratory on a clip board. Prior months are kept in the District Manager’s office in the monthly reports three ring binders.
Preventative maintenance records	Work orders that are in progress are maintained by the operator charged with the specific task. Completed work orders are kept in the Superintendent’s office.
Annual Biosolids Reports	The original biosolids report is kept in the office of the District Manager. Copies are kept in the Assistant Manager’s Office, the Superintendent’s Office and on the District’s web site.
Accounting records	Accounting and timekeeping records are kept in the office of the District Accountant. In addition, records on loads hauled to the landfill are kept here.
Internal Audit/External Audit and Biosolids EMS Controlled Document.	The original internal audits are kept in the Lead Auditor’s office. External audits are kept in the Manager’s Office. The controlled EMS manual is stored on the District Manager’s desktop computer. Copies of all these documents are also available on the District Website.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Added Landfill Records Location	7/21/2015
10	Changed Location of Controlled Record	9/28/2015
11	Block Header changed from “reviewed” to “revised”	11/09/2018
12	Updated Engineering Manager and District Engineer	10/23/2019
13	Updated locations of documents	10/26/2022

Element 14: Nonconformance – Preventive & Corrective Action

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *October 17, 2022*

By: *Jill S. Jones*

Introduction

The purpose of this element is to establish, document and maintain procedures for investigating noncompliance with BMP protocols, legal/regulatory and other requirements, including conformance issues that may arise from monitoring/measurement activities, operations activities or non-conformances noted as a result of internal or external BMP audits.

Procedure

1) **Permit Related Legal/Regulatory Nonconformance**

Legal/Regulatory Requirements are either specifically identified in Central Davis Sewer District UPDES Discharge Permit/Biosolids permit or are incorporated by reference. The permit contains procedures for investigating nonconformance of legal/regulatory requirements identified in the permit as well as defining, planning, and implementing corrective action. The UPDES permit for the District is included in Appendix 1. Permit violations must be reported within a mandated time frame. Specifically, the UPDES permit in Part V Paragraph H contains a non-compliance notice requirement which requires 24 hour phone call and a follow-up five day report. Reporting requirements include:

- A description and probable cause,
- Period of non-compliance,
- Estimated time for continued non-compliance,
- Steps taken or planned to reduce, eliminate, and prevent reoccurrence,
- Steps taken to mitigate adverse impacts.

The District will also take steps, determined at the time to be needed, to notify any affected citizens if the nonconformance is expected to have a human impact.

2) **EMS Nonconformance Identified During Internal Audits**

- a. Internal audits will be conducted in accordance with procedures developed under Element 16.
- b. An audit and correct action worksheet will be completed for each element audited. The worksheet may contain some or all information depending on relevancy; the worksheet can be found on page 14-5.

- c. The auditor will complete (i) through (vi) above as needed, as well as all specific questions contained in the worksheets. A current copy of the NBP Third Party Auditor's Guidance document will be available as a resource to the internal audit team. The NBP Third Party Audit Guidance will be used as a basis for development of an audit checklist. This checklist is available as an external document to the BMP Manual. In addition, the NBP Third Party Audit Guidance may be used to maintain notes during the audit process.
- d. Completed corrective action reports developed from worksheet will then be submitted to the District Manager. The District Manager will complete (vii) through (xiv) on the audit and correct action worksheet. This may be done by completing the appropriate sections directly on the corrective action report or addressing them through a separate written report. A letterhead can be also included with the corrective action reports or the separate written report. Generally, the determination of these corrective action items will be discussed and agreed to at the end of the internal audit.
- e. The District Manager is responsible for tracking progress. Progress will be tracked using methods the District Manager deems appropriate including on his/her calendar. For minor nonconformance, progress will be tracked periodically. For major nonconformance, progress will be checked every four weeks. Tracking will be documented by completing the tracking section which is included as part of the audit worksheet or corrective action report. In addition, reminders of key target dates for goals shall be kept in either Google Chrome calendar, i-phone calendar or on Outlook. These reminders will be maintained by the Manager or Assistant Manager on their calendaring system.
- f. The District Manager will prepare and submit a written report to the Board of Trustees by February 28th of each year, summarizing the internal audit results and corrective actions (if necessary) that have already been taken or will be taken to address any nonconformance. The audit report may be a standalone document or may be included as part of other prepared reports (e.g. the Biosolids Management Performance Report). The audit report will be available as a paper copy and will also be posted on the District website electronically.

3) EMS Nonconformance Identified During 3rd Party Audits

- a. 3rd party audits will be conducted in accordance with the procedures identified by the National Biosolids Partnership.
- b. Audit reports will be submitted to the District Manager and the Board of Trustees.
- c. If the auditor identifies items of nonconformance, the District Manager will follow the steps listed under Step #2b(vii-xiv) above.

- d. Minor nonconformance will be corrected within a 30-day period and major nonconformance will be corrected within a 90-day period, unless the auditor and Central Davis Sewer District agree that these timeframes need to be extended or significant expenditures are needed to correct the deficiency.

4) Opportunities Identified During Internal and 3rd Party Audits

When opportunities for improvement are identified during internal or third-party audits, the District will review the recommendations and consider possible changes to the documents, SOPs or procedures. In general, the District will implement opportunities for improvements unless a compelling reason exists to not make a change. When the District implements opportunities for improvement it will be done as quickly as practicable and no later than the end of the audit year. Approximate target dates will be provided to the auditor using a letterhead.

5) Problems Identified During Routine Operations and Maintenance

Should any staff members for Central Davis Sewer District identify any program or operational deficiency during the execution of their duties, the individual should fill out the Central Davis Sewer District Corrective Action Worksheet – BMP Deficiency Routine Operations and Maintenance Activities worksheet. The employee should fill in their name and a summary of the deficiency. The form should then be given to the District Manager for evaluation and determination of corrective action. The Manager will track the corrective actions. Another approach that has been implemented is using Emaint, the operator would fill out a corrective workorder in Emaint and log what the operator did in the Emaint logs. Either approach is acceptable.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	Addition of O&M corrective action section and worksheet	10/9/2011
8	Footer added, Auditor Reference Removed, OFI action	9/29/2012
9	Tracking Accomplished in Google Chrome calendar, i-phone calendar or on Outlook in section 2(e)	7/21/2015
10	Block Header changed from “reviewed” to “revised”	11/09/2018
11	Simplification and updating sections 2b/2d; removed redundancy	11/09/2018
12	Added Engineers to responsibility of goal maintenance	10/23/2019
13	Added addressing 3 rd Party Audit response for Opportunity for Improvement	12/05/2019
14	Clarified reference to the audit and corrective action worksheet	12/05/2019
15	Updated Section 5# Problems Identified During Routine Operations and Maintenance to include Emaint	12/05/2019
16	Clarified timeframe to implement opportunities for improvement	10/17/2022
17	Clarified timeframe to implement opportunities for improvement per recommendation of audit	10/26/2022

Audit and Corrective Action Worksheet

- i. Element #**
- ii. Audit type:**
- iii. Auditor's name:**
- iv. Period being audited:**
- v. Audit date(s):**
- vi. Summary of findings:**
- vii. Nonconformances (if any) and cause:**
- viii. Corrective actions already taken (if any):**
- ix. Recommended additional corrective actions (if any):**
- x. Person(s) responsible for implementing corrective action(s):**
- xi. Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any):**
- xii. Estimated completion date:**
- xiii. Required resources:**
- xiv. Tracking:**

Corrective action worksheet

Date	Status of corrective action	Supporting documentation

Central Davis Sewer District
Corrective Action – BMP Deficiency
Routine Operations and Maintenance Activities

Element # (if applicable): _____

Deficiency/Problem Identified By: _____

Summary of Deficiency or Problem: _____

Corrective actions taken: _____

Person(s) responsible for implementing corrective action(s): _____

Tracking:

Corrective action worksheet

Required Action	Completed By	Date

Element 15: Biosolids Management Program Report

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *November 09, 2018*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District will periodically prepare a performance report that provides summary information on activities associated with the biosolids management program(s) and the EMS.

Procedure

The District Manager will prepare a written report on an annual basis that summarizes the performance of the biosolids management program. The performance report will be completed by February 28th of each year and will address performance during the previous calendar year. At a minimum, the report will contain the following information:

- a. Summaries of monitoring data and other measurements that demonstrate the performance of Central Davis Sewer District biosolids program relative to established goals, objectives, and legal requirements.
- b. Summary of relevant contractor activities (if any).
- c. Summaries of actions that have been taken on a voluntary basis.
- d. Progress towards achieving biosolids program goals and objectives.
- e. A summary of internal audits.
- f. A summary of independent third party audits (if applicable).

Usually, the performance report will be included in the annual report submitted to the Board, the State Division of Water Quality and EPA. The performance report will be posted on the District website and may also be available upon request in a paper format.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Block Header changed from "reviewed" to "revised"	11/09/2018

Element 16: Internal EMS Audit

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *October 17, 2022*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District will conduct periodic internal audits of the EMS program in order to determine the effectiveness of the biosolids program.

Procedure

- 1) Central Davis Sewer District will normally conduct internal audits of the EMS program on an annual basis. In years when a formal 3rd party verification or interim audit is conducted, the District may forgo the internal audit, but currently this is not considered a standard practice.
- 2) Internal audits will be completed by February 28th of the following year and will address program activities completed during the previous operating period. Internal audits may be started in fall of the year being audited.
- 3) The audit will be conducted by the Central Davis Sewer District EMS Internal Audit Team under the direction of the Biosolids Analyst (who will usually be the Lead Auditor). The EMS Internal Audit Team will consist of some or all of the following: District Manager, Operations Superintendent, Operators, Board Members, State Biosolids Coordinator, invited individuals from other facilities, and consultants.
- 4) The audit will evaluate the effectiveness of the biosolids program, including progress toward goals and objectives, response to non-conformances, management review, public participation, and communications. Specific EMS Elements may be evaluated as a part of this review, at the discretion of the Lead Auditor.
- 5) All documents and records related to the current internal audits will be maintained in the Lead Auditor's Office.
- 6) The NBP Agency EMS Guidance Manual and other appropriate documents will be made available as a resource to the audit team. The objective methods listed in Guidance are as follows:
 - i. Document and records review
 - ii. Interviews
 - iii. Direct observation
- 7) Nonconformances will be addressed using the procedure identified in Element 14.
- 8) The Assistant Manager will prepare and submit a written report to the Board of Trustees and for inclusion of the annual report by February 28th of each year, summarizing the internal audit results and corrective actions (if necessary) that have already been taken or will be taken to address any nonconformances. The audit report may be a stand alone document but will usually be included in the annual report unless a beneficial reason exists for the stand alone approach. The audit report will be posted on the District website and will also be available upon request in a paper format.

- 9) The District Manager will periodically evaluate the need to provide training or guidance to the internal auditors. The District Manager will be responsible for coordinating any subsequent activities related to training or guidance.
- 10) All audit team members should be qualified to perform the audit. Qualifications for auditing include, but are not limited to, the following:
 - i. Familiarity with biosolids regulatory requirement as specified in the District permit and as found in 40 CFR Part 503.
 - ii. Understanding of the District Biosolids EMS program as currently established.
 - iii. Review of the NBP Third Party Auditor's Guidance.
 - iv. Auditors will be approved by the District Manager and Assistant Manager.
- 11) The preference of the District is to use auditors from Utah in order to build experience within the state and to foster others to become NBP member agencies.
- 12) During the internal audit a review should be completed for compliance with the Code of Good Practice and conformance with annual goals. An audit Checklist for this activity is included at the end of this element.

Auditor Review Tools

The audit team will be using the following documents during the audit process to aid in the documentation and overall process:

- The District Biosolids EMS Manual
- The NBP Third Party Verification Auditor Guidance
- Audit Checklist prepared from the Third Party Guidance
- Audit and/or Corrective Action Worksheet
- Other documents as needed by the audit team.

The audit team is encouraged to keep notes in either or both the Third Party Auditor Guidance, on the Checklist, or on the audit worksheets. The Assistant Manager will accumulate all the working documents for storage and later review, as needed.

Periodic Auditor Review

In order to ensure continued compliance with regulatory required documentation, the Assistant Manager may audit compliance record for all biosolids activities on a periodic basis. The records will be evaluated for completeness and compliance with regulatory standards and for compliance with this EMS manual. Action items found will be

documented on a corrective action form. The date of the review will be maintained in the Assistant Manager’s calendar. No official inspection report will be prepared.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	A review of the Code of Good Practice and the Goals and Objectives Were Added to the Internal Audit Checklist	7/21/2015
10	Delete quarterly audit	9/28/2015
11	Updated Engineering Manager	10/23/2019
12	Changed time frame of internal	9/01/2021
13	Updated titles and roles	10/17/2022

Audit and/or Corrective Action Worksheet

- i. Element #**
- ii. Audit/Activity type:**
- iii. Auditor's/Author's name:**
- iv. Period being audited:**
- v. Audit/Activity date(s):**

Summary of findings:

- vi. Nonconformances (if any) and cause:**
- vii. Corrective actions already taken (if any):**
- viii. Recommended additional corrective actions (if any):**
- ix. Person(s) responsible for implementing corrective action(s):**
- x. Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any):**
- xi. Estimated completion date:**
- xii. Required resources:**
- xiii. Tracking:**

Tracking Worksheet

Date	Status of corrective action	Supporting documentation

Element 17: Management Review

Created/Approved: *July 13, 2006*

By: *Board of Trustees*

Date issued: *July 13, 2006*

Date last revised: *November 09, 2018*

By: *Jill S. Jones*

Introduction

Central Davis Sewer District will conduct a management review of its biosolids and EMS program on an annual basis. The purpose of this review will be to address the possible need for changes to policy, the goals and objectives, the biosolids management program and other EMS elements based on internal EMS audit results, third party verification audit results, changing circumstances, and Central Davis Sewer District commitment to continual improvement.

Procedures

- 1) The District Manager will review the EMS and related biosolids management activities on an annual basis. Since the District Manager is included in the entire biosolids process, the Management Review will normally be a part of Element 15 – Biosolids Management Program Report.
- 2) The review will be conducted by February 28th of each year and will cover activities conducted during the previous year.
- 3) The scope will include:
 - a. Review monitoring data and other measurements that demonstrate the performance of Central Davis Sewer District biosolids program relative to established goals, objectives, and legal requirements.
 - b. Review progress towards achieving biosolids goals and objectives.
 - c. Review internal audit results.
 - d. Review 3rd party audit results.
 - e. Review the need for changes in existing policy or the adoption of new policy to support the EMS and biosolids related activities.
- 4) The report and management review will be carried out in close coordination with the Biosolids Management Program Performance Report and the internal EMS audit. To the extent practicable, an effort will be made to develop a single report on an annual basis.
- 5) The District Manager will schedule a meeting with the Board of Trustees to discuss the report.
- 6) Any changes to policies, goals/objectives, plans, procedures, work practices, corrective action, and other EMS elements deemed necessary as part of the management review will be documented in writing by the District Manager.

CDSD Internal Audit EMS Checklist

Code of Good Practice **	
Is compliance with all applicable federal, state and local requirements being met?	
Are applicable standards being met for the intended use of biosolids?	
Is there independent third-party verification?	
Are production and management practices being monitored?	
Are good housekeeping practices being observed in biosolids production through final disposal?	
Are there response plans in place for unanticipated events such as inclement weather, spills, and equipment malfunctions?	
Is there a commitment to sustainable, environmentally acceptable biosolids management practices?	
Is there a plan for preventive maintenance for equipment used to manage biosolids and wastewater solids	
Is there continual improvement in all aspects of biosolids management?	
Are there methods of effective communication with interested parties regarding key elements of each environmental management system?	

**To be reviewed at every internal audit

CDSO Internal Audit EMS Checklist

Goals and Objectives**	
Are goals established using SMART criteria?	
Do goals and objectives consider --Environmental Performance, Regulatory Compliance, Quality Management Practices and Relations with Interested Parties?	
Are goals and objectives reviewed and approved by General Manager?	
Are new or revised goals and objectives included in the annual biosolids management program report?	
Are goals and objectives posted on District bulletin board?	
Is there an action plan to support each goal?	

**To be reviewed at every internal audit

Tentative Schedule for Year End Reports

The following is a tentative schedule for completion of year end activities:

1. Review roles and responsibilities for the EMS program – 1st Week January
2. Review operational controls – 2nd Week January
3. Review monitoring and measurement activities – 2nd Week January
4. Completion of biosolids annual report for permitting authority – 3rd Week January
5. Internal Audit of EMS – 4th Week of January
6. Performance report of EMS program – 1st Week in February
7. Report to Board – 2nd Thursday in February
8. Report submittal to permitting authority and for posting on the website – February 19.

It is recognized that the above schedule is tentative and may be adjusted slightly as the work progresses. The fixed dates are the Board meeting the second Thursday of February, report submittal to permitting agency, and all reports complete and posted on the website – February 28 of each year. If possible, this report can also be presented to the Board at its January meeting if work can be completed early enough.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this Element	3/17/2012
8	Footer Added	9/29/2012
9	Minor Calendaring Changes	7/27/2015
10	Block Header changed from “reviewed” to “revised”	11/09/2018

Central Davis Sewer District Index of Standard Operating Procedures

- #001 – Anaerobic Digestion
- #002 – Class A EQ Composting
- #003 – Class B Composting
- #004 – Land Application of EQ Biosolids
- #005 – Distribution and Marketing of Class A EQ Compost
- #006 – General Operations/Daily Operating Duties
- #007 – Digester Mixing
- #008 – Belt Press/Thickening Operations
- #009 – Preparation of Admixture – Wood Grinding
- #010 – Dust Production Activities – Safety
- #011 – Odor Reduction Agent Addition
- #012 – Class A ASP Composting
- #013 – Landfilling
- #014 – Secondary Digester (Duo-sphere)
- #015 – Emergency Action for Biosolids Transportation Release
- #016 – Digester Cleaning
- #017 – Screw Press Operations

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #001
Anaerobic Digestion**

Created/Approved: *July 13, 2006* **By:** *Board of Trustees*
Date issued: *July 13, 2006*
Date last revised: *April 06, 2023* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to ensure adequate digester operations which comply with the requirements found in 40 CFR Part 503 for a process to significantly reduce pathogens (Class B) and to meet vector attraction reduction standards. Specific standards are that the anaerobic digester shall remain above 35°C (95°F) for 15 days HRT and that a volatile solids reduction of at least 38% must take place in the digester.

Operating Requirements:

Temperature

1. Primary Digester operating controls should be set at a temperature greater than 35°C (95°F).
2. Digester temperatures are recorded by the operators daily in the operating log. Periodically the operating log temperatures are transcribed to the Digester Temperature spreadsheet by the operator responsible for records.
3. Should any temperatures fall below 36°C (97°F), the Superintendent should be notified so that corrective action can be taken. Corrective action will be based on best professional judgment and may include any or all of the following items:
 - a. Check mixer operation. If mixers are not working, troubleshoot and correct problem.
 - b. Check and ensure the heat exchanger is working correctly. If it is not, troubleshoot and repair as needed.
 - c. Check flow to digester to verify that it is consistent with normal flows (see most recent HRT calculation sheet). If flows are set to high or a malfunction has occurred, repair as needed.
 - d. If corrective action cannot rectify the problem in one digester, all flows should be directed to the correctly operating digester and

flows adjusted to maintain the 15 day HRT. Flows may also need to be adjusted between the oxidation ditch treatment train and the trickling filter treatment train to make certain the solids do not accumulate in the primary clarifiers.

Digester HRT

1. Digester HRT's are determined based on the pumping flow rates and times of the pump system. Operator may adjust the pump time to accommodate the changes in the sludge blanket level of the clarifiers. Should any operator change the timers, they must immediately notify the person responsible for records so that new HRT calculations can be made.
2. The HRT Spreadsheet will be completed (copy attached), usually the same day, to ensure compliance with the minimum of 15 days. The spreadsheet will include calculations for residence time in both primary and secondary digesters.
3. Should any changes to pump rate or frequency occur which cause the cumulative HRT to fall below 15 days, the Superintendent should immediately reduce pumping rates to comply with the 15-day statutory requirement. Changes in flow between the oxidation ditch and the trickling filter trains may also be needed if solids accumulate in the primary clarifiers.

Volatile Solids Reduction

1. Samples shall be taken at least quarterly from the primary clarifier underflow being pumped to the digesters and from the biosolids being pumped from the digester to the belt thickener. Operators shall deliver the samples to the laboratory where they will be analyzed for solids contents and volatile solids percentage.
2. The Laboratory Personnel will analyze the samples and determine the volatile solids concentration. Using the Van Kleek Equation (copy of spreadsheet included) the lab staff shall determine if the 38% requirement is met. If the requirement is not met, the lab staff shall immediately contact the District Manager for corrective action.

Following notification, the Manager, using his/her best professional judgment, may take one or more of the following actions:

- a. The first action should be to quality check the laboratory results.

This checking should include math checks and comparison of results

- to previous tests.
- b. If any of the numbers are significantly different from recent averages, one or more retests should be immediately performed. If the retests validate the original results, additional action following will be needed. If the retests are substantially different from the original test and conform with the 38% requirement all tests should be reported and no further action is required.
 - c. If results are below the 38% regulatory limit, sludge should no longer be land applied and all wastewater flows should be diverted to the Oxidation Ditch train. After an appropriate time period (at least one week), the digested solids should again be checked to see if volatile solids reduction can now be met. Once the volatile solids reduction is greater than 38% operations can be returned to normal.
 - d. If flows cannot be diverted from the trickling filter train, thickened sludge should be wasted to the old drying beds for air drying or mixed with wood chips and composted in accordance with the composting SOP. The digester system should be frequently tested (at least once every two days) to monitor progress toward returning to 38% volatile solids reduction.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018
10	Minor operational revisions	09/07/2021
11	Laboratory Supervisor changed to Lab Staff	04/06/2023

Central Davis Sewer District Digester HRT Calculations

DATES

8/20/2009 - 8/26/2009

Central Davis Sewer District Digesters HRT's are calculated as if there is no supernating. The District does supernate so actual HRT's are longer than calculated.

Primary Digesters - Heated and Mixed - Active Volume

Digester 1		27,800 ft cubed
Digester 2		<u>43,100</u> ft cubed
Total Volume		70,900 ft cubed
Gallons Conversion		<u>7.48</u> gal/ft cubed
Storage Volume		530,332 gallons
Dead Storage - 1 foot		<u>4%</u>
Active Storage		509,119 gallons

Daily Pumping Rate - Plunger Pumps

Pump Rate		80 gpm
Pump 1 time		10 min
	Per	206 min
Pump 2 time		14 min
	Per	206 min
Total Pumping per day		167.77 min/day
Total Pump Volume		13,421 gal/day

Primary Digester HRT

Hydraulic Residence 37.9 Days

Secondary Digester HRT - Unheated

Active Storage 207944 gallons

Hydraulic Residence 15.5 Days

Total Digester HRT 53.4 Days

Central Davis Co. Sewer District

VS Reduction

Van Kleek Equation- White House Manual

Date Tested: 4/13/2021

$$FVSR = 1 - \frac{VS_b \times (1 - VS_f)}{VS_f \times (1 - VS_b)}$$

Where Digester solids as a fraction 0.6501
 Primary solids as a fraction 0.8312

0.1688
0.3499

$$1 - \frac{0.10973688}{0.29083688}$$

$$1 - 0.377314184$$

Reduction 0.6227 62%

Total & Volatile Solids

SM 2540 B & E

Central Davis Sewer District

SRM ID: P295-506 SRM Exp: 12-5-22 SRM TV: 433 mg/L SRM Limits: 375-481
 Date sampled 4-13-21 Sampled By Paco Date Analyzed 4-13-21 Analyst AM
 In Incubator 4-13-21 13:39 PM Out Incubator 4-14-21 09:55 AM In Furnace 4-14-21 11:44 AM Out Furnace 4-14-21 13:10 PM

Line	Sample Location	Blank	SRM	Aerobic	Aerobic Dup	Anaerobic	Primary	Digester
1	Bottle #			12	12	13	10	11
2	Dish + Sample wt			52.6252	57.0924	49.7475	65.7919	65.9687
3	Dish wt	43.5163	52.4591	50.0354	54.6696	46.7989	54.4550	55.9845
4	Sample wt	100 mLs	50 mLs	2.5898	2.4228	2.9486	10.3369	9.9842
5	Dish + Dry Sample wt	43.5163	52.4824	50.4453	55.0552	46.9921	54.9886	56.2860
6	Dry Sample wt	0.0000	0.0233	0.4099	0.3856	0.1932	0.9336	0.3015
7	Dish + Ash Sample wt			50.1045	54.7341	46.8677	54.5431	56.0900
8	Ash Sample wt			0.0691	0.0645	0.0688	0.0881	0.1055
9	Total Solids % (Ln6*100/ Ln4)	0%	466 mg/L	15.83%	15.92%	6.55%	5.16%	3.02%
10	Volatile Solids % (Ln5-Ln7*100/ Ln6)			83.14%	83.27%	64.39%	83.12%	65.01%

QA/QC by: _____ Date: <u>4-20-21</u>	QA Check <u>OK</u>
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**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #002
Class A EQ Composting**

Created/Approved: *July 13, 2006* **By:** *Board of Trustees*
Date issued: *July 13, 2006*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to ensure an adequate composting operation which produces compost meeting the exceptional quality, Class A pathogen standard. In order to do this, 40 CFR Part 503 Table 3 metal concentrations and windrow compost time, temperature, and turning requirements must be met. Specifically using a windrow method, compost piles must remain above 55°C for 15 days or longer. During the 15-day period the compost piles must be mixed at least five times.

Operating Requirements:

Wood Waste – Admixture Preparation

1. The District receives construction wood waste and yard waste periodically throughout the year. The wood waste and yard waste will be visually monitored for objectionable materials. Examples of objectionable materials are steel or hard objects which may harm the hammers(excludes nails) , plastics or other “garbage type material which does not readily biodegrade, root balls from trees, and wood waste such as railroad ties which may be spiked with steel objects or contain treatments which may impact the compost quality. Should objectionable materials be identified by any staff member, the District Manager should be immediately notified in order to require the supplier of the wood waste to take immediate action to eliminate objectionable items. If the supplier does not correct the problem, the supplier should be stopped from further delivery of waste materials.
2. Periodically throughout the year, the District will grind the wood waste in a tub grinder or similar piece of equipment. Grinding is normally done by District staff, utilizing District equipment. However, in emergency situations the District may use a contractor to complete the grinding. The grinding operation shall conform to SOP #9.
3. During the screening of finished compost, oversized compost wood chips will be stored and may be periodically re-ground in the tub grinder.

- Recycled wood chips will be returned to the composting process.
4. Fresh and recycled wood chips shall be used in the composting process.

Compost Preparation

1. Dewatered biosolids from the belt presses shall be mixed with wood chips in the truck mounted mixer. If the truck mixer is out of service, a loader can be used as backup for the mixing process. Wood chips and compost are mixed in an approximate 3:1 ratio by volume or 1:1 by weight. This volume ratio may be adjusted by the operator based on current ambient temperatures, moisture of the wood waste, and other salient factors. Generally, adjustments are based on operator experience and the exact mix is not important.
2. About two weeks of production are combined into a single pile. Each day's production is stacked in the pile and capped with wood chips for odor control. Generally, piles are about 20 feet at the base and 12 feet tall at the top and are in a triangular shape. A two week pile is about 130 feet long and there are generally five to seven piles in the active curing area. Actual pile dimension is flexible based on ambient conditions and operator judgment. At the end of the two week period, piles are left to cook and are not disturbed for about an additional week. Each pile is assigned a unique pile number by the operator responsible for records and the start date is recorded in the compost pile records. The pile number is normally the start date of the pile in month/day/year convention. A records sheet is prepared for each pile showing the pertinent information including turning dates and pile temperatures during the regulatory period.

Compost Regulatory Period

1. The regulatory period shall be at least 15 days. During this period the compost shall be monitored and mixed to ensure regulatory compliance.
2. Pile temperatures are to be recorded on the pile record sheet daily by the operators. The recorded temperature shall be the average of one or more temperature readings taken by the operator. The number of readings shall be sufficient, in the opinion of the operator based on visual and other indicators, to be representative of the pile. Compost temperature readings should be taken at least three feet below the pile surface and in locations representative of the entire pile.
3. Piles shall be turned on the dates shown on the pile sheets. Generally, the turning days should be done on Mondays through Fridays of the 15 days temperature recording period. The operator responsible for records will initial these dates on the pile record sheet. Mixing will usually be accomplished by use of the inclined face pile turner. A loader may be used if the pile mixer is unavailable. Each pile should be completely mixed and restacked.

4. Once the regulatory period has been met, the operator responsible for records shall cease to maintain pile temperatures and mixing will occur on an as-needed basis.

Compost Curing and Screening

1. Compost will, generally, be cured in the individual piles for an additional six weeks before being moved to the screening area for final curing.
2. Final curing will take an additional two to six months more or less until a stable viable product is produced. The operator shall use best professional judgment in curing times. Temperature, visual moisture content, and odors will be used as part of the judgment process.
3. After curing, finished compost shall be periodically screened to produce an acceptable final product. Screened compost will be stockpiled for distribution and marketing.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

Central Davis Sewer District
Compost Pile# 090914

Action Item	Date	Piling Turning		Temperature		
		Turning Required	Operator Initials	Time	Temperature	Operator Initials
Begin Pile Construction	Monday, September 14, 2009					
Compost Pile QC						
Temperature Monitoring	Monday, September 21, 2009	Meets Time				
	Tuesday, September 22, 2009	Meets Temperature				
	Wednesday, September 23, 2009	Meets Turning				
	Thursday, September 24, 2009					
	Friday, September 25, 2009			10:40 AM	73°	(B)
	Saturday, September 26, 2009			9:37 AM	70°	BA
	Sunday, September 27, 2009			8:15 AM	70°	BA
	Monday, September 28, 2009			7:40 AM	69°	JH
	Tuesday, September 29, 2009			7:45 AM	61°	JH
	Wednesday, September 30, 2009			10:03 AM	56°	(B)
	Thursday, October 01, 2009			2:45 PM	64°	JH
	Friday, October 02, 2009			7:40 AM	64°	JH
	Saturday, October 03, 2009			8:10 AM	61°	JH
	Sunday, October 04, 2009			8:05 AM	61°	JH
Regulatory Period	Monday, October 05, 2009			9:26 AM	57°	(B)
	Tuesday, October 06, 2009		(B)	8:50 AM	60°	(B)
	Wednesday, October 07, 2009			9:47 AM	69°	(B)
	Thursday, October 08, 2009			8:35 AM	71°	(B)
	Friday, October 09, 2009		(B)	9:12 AM	66°	(B)
	Saturday, October 10, 2009			8:48 AM	67°	(B)
	Sunday, October 11, 2009			10:10 AM	69°	BA
	Monday, October 12, 2009		(TW)	7:45 AM	70°	JH
	Tuesday, October 13, 2009			5:00 PM	70°	JH
	Wednesday, October 14, 2009		(TW)	8:45 AM	68°	(TW)
	Thursday, October 15, 2009			1:50 PM	68°	(B)
	Friday, October 16, 2009		(B)	6:20 AM	68°	JH
	Saturday, October 17, 2009			3:30 PM	58°	JH
	Sunday, October 18, 2009			7:50 AM	69°	JH
	Monday, October 19, 2009			8:41 AM	62°	(B)
	Tuesday, October 20, 2009			9:50 AM	62°	(B)
	Wednesday, October 21, 2009			7:55 AM	60°	JH
Pile Complete	Thursday, October 22, 2009			7:40 AM	56°	JH

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #003
Class B Composting**

Created/Approved: *July 13, 2006* **By:** *Board of Trustees*
Date issued: *July 13, 2006*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to ensure an adequate composting operation which produces compost meeting the exceptional quality Class B standard. In order to do this, Table 3 metal standards and compost time, temperature, and turning requirements must be met. Specifically using a windrow method compost piles must remain above 45°C for 5 days or longer and for a 4 hour period the compost must be above 55°C. During the 5 day period the compost piles may be mixed, but this is not required.

Operating Requirements:

Wood Waste – Admixture Preparation

1. The District receives construction wood waste and yard waste periodically throughout the year. The wood waste will be visually monitored for objectionable materials. Examples of objectionable materials are steel or hard objects which may harm the hammers(excludes nails), plastics or other “garbage type material which does not readily biodegrade, root balls from trees, and wood waste such as railroad ties which may be spiked with steel objects or contain treatments which may impact the compost quality. Should objectionable materials be identified, the District Manager should be immediately notified so that corrective action can be taken.
2. Periodically throughout the year the District shall grind the wood waste in a tub grinder or similar piece of equipment. Grinding is normally done by District staff using District equipment. The grinding operation shall conform to SOP #9.
3. During the screening of finished compost, oversized compost wood shall be stored and periodically grinded in the tub grinder
4. Fresh and recycled wood chips shall be used in the composting process

Compost Preparation

1. Class B compost shall conform to the preparation requirements in SOP #2.

2. Generally, Class B compost is produced when a pile fails to conform to Class A standards

Compost Regulatory Period

1. The regulatory period shall be at least 5 days. During this period the compost shall be monitored to ensure regulatory compliance.
2. SOP #2 procedures shall be followed and documentation recorded
3. Once the regulatory period has been met, the operator responsible for records shall cease to maintain pile temperatures and mixing will occur on an as-needed basis.

Compost Curing and Land Application

1. Compost will, generally, be cured in the individual piles for an additional six weeks before being moved to the screening area.
2. Curing may take place for an additional two to six months more or less until a stable viable product is produced. The operator shall use best professional judgment in curing times.
3. After curing, finished compost shall be land applied at agronomic rates.
4. The District Manager and the operator responsible for records shall determine the agronomic rate in accordance with SOP #4.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #004
Land Application of EQ Biosolids**

Created/Approved: *July 13, 2006* **By:** *Board of Trustees*
Date issued: *July 13, 2006*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to ensure adequate planning and operations of Class A & B EQ biosolids on land adjacent to the District’s Wastewater Treatment Plant owned by the District. Land application is done in accordance with agronomic practices and on a site where all site restrictions are met. The Class B EQ biosolids are anaerobically digested and thickened prior to land application. Class A and B compost may also be land applied. Application takes place year round since the site is diked to contain any runoff and the slope of the ground complies with winter standards for land application. Farm field testing is managed by the District Manager through a local laboratory.

Operating Requirements:

Land Application Process

1. The land application area is divided into multiple zones and each zone is monitored separately for biosolids application.
2. Annual soil sampling is completed by a local laboratory certified to perform such analysis and composite and discrete samples are prepared for laboratory testing. Nitrogen and phosphorus availability for the zones is important in determining the application rate.
3. Thickened anaerobically digested biosolids are tested as specified in the UPDES Permit on at least a quarterly basis for metals and nutrient (nitrogen and phosphorus) values. This quarterly testing is scheduled by the Laboratory personnel and the operator responsible for records.
4. When a new field is needed for land application, the District Manager and the operator responsible for records will determine which zone is next for land application. Zone selection may be based on duration since last application, productivity of the current zone crop or after sod has been cut. The operator responsible for records will prepare an analysis to determine how many spreader loads of thickened biosolids can be applied to the field (see attached forms). These calculations will be reviewed by the District Manager for completeness. Current quarterly biosolids and farm field testing results will be used in the load count analysis.

5. An application record sheet will be prepared by the operator responsible for records to allow operators to track the land application process. The total loads for the zone will be listed on the application record form and the operators are to monitor the total loads applied against the allowable maximum.
6. Shortly before the maximum loads are reached for the current zone where biosolids are being applied, any operator should notify the operator responsible for records for direction as to the next zone.

Biosolids Land Application Process

1. Each load of biosolids should be spread across the field in such a manner as to ensure the uniform distribution over the entire field when all loads have been applied. The operator shall use site specific visual analysis to make this determination.
2. Load counts should be recorded, preferably on the same day the work was completed. A calculator tally of all loads applied to the current zone should be done at time of the daily recordings
3. Land application can be done winter and summer and on snow covered or frozen ground. It should be noted that land with a slope greater than 6% are not suitable for winter application. None of the District's current zones exceed this slope
4. After each day is complete, the operator shall provide cleanup of the equipment used.
5. The UPDES permit for the District contains site restrictions and management practices for land application sites where Class B biosolids have been applied. All personnel should review the permit in order to understand and comply with the site restrictions. The District Manager will be responsible for overall compliance with these requirements, however the following ones should be considered by all operators:
 - a. Hay should not be harvested from a field where application has occurred within the past 30 days. Normally after application the fields are disked and replanted, but if this practice should not be followed, the 30 day requirement must be met.
 - b. Turf grass cannot be harvested until at least one year after the land application occurs. Normally the turf fields will be tilled and planted after biosolids land application. The replanted fields usually take at least eighteen months before the crop is ready to be harvested. The one year period should be reviewed and complied with if faster harvesting is likely to take place.
 - c. Access to the site (low potential for public contact) should be limited for at least 30 days after application. Signage should be posted around the site warning of biosolids application. A check of adequate signage should be conducted annually as part of the internal audit.

- d. Application of biosolids should not occur within 10 meters (33 feet) from the stream which flows through the East side of the District’s property. Berms have been erected on the east side of the stream which limit access within this 10 meter area. The West side of the steam should be monitored closely when applying in that field.
- e. Nitrogen requirements will be used to determine the agronomic rate for biosolids land application in each zone. The results of current tests should be relied upon for this calculation.
- f. The UPDES permit for the District also restricts phosphorus application when high concentrations are seen in the soils. This requirement has been waived for all but the 2 northern fields due to berms which contain runoff.

New Site Selection Process

- 1. Should the District need to select a new land application site, the District Manager will coordinate this effort.
- 2. Site selection will be based on multiple factors including but not limited to the following:
 - a. Depth to groundwater.
 - b. Site topography
 - c. Soil concentrations of nitrogen and phosphorus
 - d. Site ability to comply with Class B site restrictions and management practices.
 - e. Proximity to homes and other habitable spaces
 - f. Proximity to surface water and wells.
- 3. The preference of the District currently is to own the land application site.
- 4. Once a site has been selected, the District Manager shall arrange any additional soil testing as needed.
- 5. Adequate data should be provided to the operator responsible for records for the analysis of loads. Land application may now take place.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

Application Analysis for Zone 3

Total Loads **313**

Zone Number	3
Acres in Zone	7.8 Acres
Fertilizer Required per Acre (Based on Cropping Values) for orchard grass, alfalfa and trees)	400 lbs/acre
Total Fertilizer Required	3120 lbs
Fertilizer Available in Soil	13.96 ppm NO ₃ -N
Total NO ₃ -N Available in Soil (Five times the NO ₃ -N in Soil)	544.44 lbs
Net Fertilizer Required for Zone	2575.56 lbs

Load Analysis	
fertilizer required	2575.56 lbs
nitrogen per load	8.2 lbs
Total Loads - Calc	313
Whole Sludge Application Rate Analysis - Calculated	
Application Acres	7.8
Loads Per Acre	40
Percent Solids	6.3%
Solids Per Load	701 lbs
Application Rate	14.1 tons/acre
Metric Rate	31.5 MT/Ha
Whole Sludge Application Rate Analysis - Actual	
Total Loads Applied	301
Loads Per Acre	38.6
Application Rate	13.5 tons/acre
Metric Rate	30.3 MT/Ha

Total Available Nitrogen - Anaerobic Biosolids	
Load Volume	1300 gal
Weight per gallon	8.35 lbs.
Specific Gravity	1.025
Weight per Load	11126 lbs
NH ₄ -N Concentration	572 ppm
Volatilization Factor - Kv	50%
Fertilizer Value per Load	3.2 lbs
Organic Nitrogen Concentration (TKN-NH ₄ -N)	2261.3 ppm
Mineralization Rate	20%
Organic - N per Load	5.0 lbs
NO ₃ Concentration	1.6 ppm
NO ₃ -N per Load	0.0 lbs
Total Available Nitrogen per Load	8.2 lbs

Anaerobic Sample - in ppm			
Date	TKN (organic nitrogen)	NO ₃ -N Nitrate+	NH ₃ -N Ammonia
		Nitrite as N	as N
1/8/08	2600	1.5	468
4/4/08	3,000	2	590
7/7/08	2900	1.2	658
Total	8500	4.7	1716
Average	2833.3	1.6	572
TKN - NH ₃ -N=organic N ppm		2261.3	

Date Application Began: **11/17/2008**

Biosolids Application Record - Zone 2

Maximum Applied Loads - 380

Date	# Loads	Cummulative Loads	Inspection time	Operator	Signature
8-13-09	5	93	7:20 AM	Bruce	R.B. Gandy
8-17-09	6	99	9:40 AM	Bruce	R.B. Gandy
8-20-09	4	103	8:50 AM	Bruce	R.B. Gandy
8-24-09	3	106	9:45 AM	Bruce	R.B. Gandy
8-28-09	5	111	10:15 AM	Bruce	R.B. Gandy
8-31-09	4	115	10:20 AM	Bruce	R.B. Gandy
9-3-09	5	120	11:40 AM	Bruce	R.B. Gandy
9-7-09	5	125	6:45 AM	Trace	R.T.O. (2)
9-14-09	5	130	9:50 AM	Bruce	R.B. Gandy
9-11-09	5	135	8:00	John	John Wood
9-16-09	2	137	8:30 AM	Bruce	R.B. Gandy
9-23-09	6	143	9:00 AM	Bruce	R.B. Gandy
9-25-09	5	148	9:10 AM	Bruce	R.B. Gandy
9-28-09	3	151	8:10 AM	Bruce	R.B. Gandy
10-1-09	4	155	9 AM	Bruce	R.B. Gandy
10-6-09	5	160	9:15 AM	Bruce	R.B. Gandy
10-12-09	6	166	9:12 AM	Johnny	John Wood
10-16-09	5	171	9 AM	Bruce	R.B. Gandy
10-19-09	4	175	8:45 AM	Bruce	R.B. Gandy
10-23-09	5	180	9 AM	Bruce	R.B. Gandy

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #005
Distribution and Marketing of Class A EQ Compost**

Created/Approved: *July 13, 2006* **By:** *Board of Trustees*
Date issued: *July 13, 2006*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to outline the process for distributing and marketing Class A EQ biosolids. Compost will be generated in accordance with the procedures outlined in SOP #2 or SOP #12, Class A Composting. Class A compost is produced in a process that further reduces pathogens and is then tested before the material is marketed.

Operating Requirements:

Testing Process

1. Compost prepared in accordance with the SOP #2 or SOP #12 must be tested for pathogens before being sold or given away. Testing should be done as close to the time of distribution as possible.
2. The District must take six representative samples yearly from finished compost in order to conform with the requirements of 40 CFR Part 503. After about two months of product has been screened, the piles should be segmented and tested for compliance. The operator's judgment should be the basis of determining if a pile represents two months of production. Screened piles shall be tested for the following items:
 - i. Heavy Metals – Heavy metals as stipulated in the permit and regulations should be evaluated. A composite sample of usually four grab samples should be obtained from the pile. The number of grab samples in a composite sample is subjective and should be sufficient to represent the entire pile. The final sample should be sent to the contract laboratory for analysis.
 - ii. Pathogen Testing – Each two month pile should be tested for either fecal coliforms or salmonella in accordance with permit standards and state and federal regulations. Seven grab samples should be taken from each pile and tested by a contract laboratory. A 10 by 10 grid should be established and the seven sampling locations should be determined by a random number generator as available on the internet. All seven discrete samples are sent for testing. Compost cannot be distributed until passing results

are obtained from this process. For fecal coliforms, the value for all tests must be below 1,000MPN/gram. For Salmonella, the value for all tests must be below 3 MPN/4 grams.

3. For the compost to be distributed, all seven pathogen samples must be lower than the permitted standard for the test being used. Heavy metal sampling must be lower than the Table 3 values found in 40 CFR Part 503.13 (also shown below).
4. If the compost does not meet the required pathogen standard, the pile should be mixed and further dried. Testing may then be repeated. This process should be followed until the standard is met.
5. If compost does not meet the Table 3 limits as stipulated in 40 CFR Part 503, the pile should be sequestered and a determination made to either land apply the compost in accordance with Table 2 cumulative limits or to mix it back in the raw compost in hopes that it will be diluted and comply with Table 3 limits when tested again with the revised piles.

Compost Distribution and Marketing

1. All compost meeting the standards for EQ classification (pathogen, VAR and Table 3 metals) may be sold to interested parties.
2. District operators will load vehicles which arrive for the compost.
3. All individuals receiving compost should be offered a flyer containing information on the beneficial use of the product (copies in accounting office). While all users are encouraged to take a flyer, they are not required to since the EQ classification has been achieved.
4. Operators should ensure that haulers of compost have properly paid for the product at the current District rate.
5. All haulers should be encouraged to comply with load covering requirements. We are, however, not able to enforce this requirement since we have no police powers.

40 CFR Part 503.13 Table 3

Pollutant	Monthly average concentration (milligrams per kilogram – Dry Weight Basis)
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Molybdenum	75
Nickel	420
Selenium	100
Zinc	2,800

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors/Updated	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #006
General Operations/Daily Operating Duties**

Created/Approved: *Dec. 14, 2006* **By:** *Board of Trustees*
Date issued: *Dec. 16, 2006*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to identify adequate operations of the Wastewater Treatment plant to ensure solid residuals which support the beneficial reuse goals of the District. The operating functions which have been identified as critical to plant operations are (1) scheduled preventative maintenance tasks and (2) operational daily operating duties.

Operating Requirements:

Preventative Maintenance

1. The District operates a scheduled preventative maintenance program. Work orders are computer generated periodically and issued to staff for completion.
2. The Operations Superintendent manages the work orders and ensures all tasks are completed and logged in the computerized system. Any deficiencies found during the execution of the work orders are reviewed by the Superintendent and appropriate action taken.
3. In addition to the preventative maintenance program the District may also conducts vibration monitoring and thermal imaginary to help prevent failure before it happens. The superintendent maintains documentation on these programs. Should these tests reveal problems, the Superintendent should take appropriate corrective action.

Daily Operating Duties

1. At various locations throughout the plant, daily operating duty charts are posted to standardize tasks that need to be reviewed.
2. Operators are tasked with the responsibility to performing the duties as outlined on the charts.

3. Validation that daily operating duties are performed is based on continued successful compliance and reliable operations. The District does not require any paper documentation for these tasks.

Operations and Maintenance Manual

1. Paper copies of specific sections are available in the Superintendent’s office.
2. The O&M manual contains information on operations of the treatment process, equipment information and electrical as-built with process control descriptions. Paper copies of these sections are in the Superintendent’s office.
3. When problems occur, these manuals may be consulted.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors/Updated	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #007
Digester Mixing**

Created/Approved: *June 14, 2007* **By:** *Board of Trustees*
Date issued: *June 14, 2007*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to ensure adequate mixing of anaerobically digested biosolids. The regulatory requirements associated with the production of anaerobic digestion are contained in SOP #1. This SOP covers the mixing operation which is an important part of maintaining temperature and ensuring completely stabilized.

Operating Requirements:

Daily System Checks

1. At least daily, the operators will check the electrical panels in the digester room to see if the indicator lights for the digester mixers are all on. This activity like all the other daily checks will be performed at least daily although operators will usually complete this check each time they enter the digester room. This usually occurs multiple times each day.
2. Check digester levels through the instrumentation indicators and also on the primary digesters by the kick test to ensure indicators are correct. The kick test involves the thumping the digester lid to hear and approximate how full the tank appears to be. Usually after several examinations operators can calibrate the sound to the amount of free space in the digester. Levels in the secondary digester should be checked on the level indicator to ensure room is available for pumping over.
3. While on the digester roof doing the kick test, listen to each digester mixer to identify any unusual sounds or to identify a mixer that is not running.
4. Check Boiler operation for temperature and normal function. Record boiler operation on a morning and afternoon basis. Proper operation can be found in the District Operations Manual.
5. During freezing weather, the PRV for each digester should be checked frequently to ensure they do not freeze close. If ice is found, gently remove it.

Weekly System Checks

1. Inspect flare system for proper operation and gas combustion. Flare operations are contained in the District O&M Manual.
2. Check for new bird nests (starlings) that may be in locations that could cause problems. Take appropriate actions to remove nests and birds.
3. Check boiler gas system for leaks and drain boiler condensate weekly.

As-Needed System Activities

1. Transfer biosolids from primary digesters to secondary digester. Valves must be in the appropriate position based on the digester being transferred. Make certain the drain valves are closed before starting pump. Complete details on transfer pumping can be found on the training video titled “Digester Pumping Operations.”
2. Supernate clear liquid from the secondary digester to the primary clarifiers. Check discharge frequently and cease supernating when the supernate turns dark or the flow stops. If the flow stops, a lower draw off pipe may be used.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #008
Belt Press/Thickener Operations**

Created/Approved: *June 14, 2007* **By:** *Board of Trustees*
Date issued: *June 14, 2007*
Date last reviewed: *April 06, 2023* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to outline the operating procedure for the belt press and belt thickener.

Operating Requirements:

Aerobic Biosolids – Belt Presses

1. Unless flows are abnormally high, one of the clarifiers will be set to automatically thicken biosolids for pumping to the belt presses. The automatic process can be set through the appropriate screen on the SCADA control system.
2. Turn on Belt presses
 - a. Select which side to waste from – WAS1 or WAS2 from HMI(Human Machine Interface)
 - b. Start Belt Tensioner
 - c. Open water valve and drop plows
 - d. Start Water Booster Pump - needs to be above 125 psi. If water valve is not open pump will destroy pipe.
 - e. When belt is tensioned start belt press
 - f. Start polymer and sludge pump. If wasting from WAS 1 start grinder.
 - g. Ensure mixing valve is set to 100% open.
3. Polymer feed rates from day tanks to the progressive cavity pumps should be adjusted with the following guidelines being noted:
 - a. If no water is running through the belt, reduce polymer feed rate.
 - b. If you have pin flock or no visible flock, increase polymer feed rate.
 - c. If there is significant white foam under the belt press, reduce polymer feed rate.
 - d. When well-formed rows appear at the end of the gravity section, polymer dose is just right.
 - e. When adjusting the polymer feed rate, changes should normally be made in 0.5 gallons per minute increments.

4. After each day of biosolids thickening, the belt presses should be washed clean and left ready for the next day operation.
5. The polyblend system refills the day tanks automatically. If day tanks are not refilling correctly, the condition or operation of the Polyblend units should be checked. The following is typically the problem:
 - a. The power to the Polyblend units has been disconnected.
 - b. The polymer tote is empty and needs to be replaced. If only one tote remains, a replacement tote should be ordered.
 - c. The Polyblend unit is plugged with polymer. This is usually identified by clear water being in the blending tank.

Anaerobic Biosolids – Belt Presses

1. This is the feed from the anaerobic digesters. This feed can be directed to the belt press.
2. Turn on Belt presses
 - a. Select which side to waste from – WAS1 or WAS2 from HMI(Human Machine Interface)
 - b. Start Belt Tensioner
 - c. Open water valve and drop plows
 - d. Start Water Booster Pump - needs to be above 125 psi. If water valve is not open pump will destroy pipe.
 - e. When belt is tensioned start belt press
 - f. Start polymer and sludge pump. If wasting from WAS 1 start grinder.
 - g. Ensure mixing valve is set to 100% open.
3. Polymer feed rates from day tanks to the progressive cavity pumps should be adjusted with the following guidelines being noted:
 - a. If no water is running through the belt, reduce polymer feed rate.
 - b. If you have pin flock or no visible flock, increase polymer feed rate.
 - c. If there is significant white foam under the belt press, reduce polymer feed rate.
 - d. When well-formed rows appear at the end of the gravity section, polymer dose is just right.
 - e. When adjusting the polymer feed rate, changes should normally be made in 0.5 gallons per minute increments.
4. After each day of biosolids thickening, the belt presses should be washed clean and left ready for the next day operation.
5. The polyblend system refills the day tanks automatically. If day tanks are not refilling correctly, the condition or operation of the Polyblend units should be checked. The following is typically the problem:
 - a. The power to the Polyblend units has been disconnected.
 - b. The polymer tote is empty and needs to be replaced. If only one tote remains, a replacement tote should be ordered.
 - c. The Polyblend unit is plugged with polymer. This is usually

identified by clear water being in the blending tank.

Anaerobic Biosolids - Belt Thickener

1. The feed to the belt thickener is usually from the anaerobic digesters. This feed is directly to the belt thickener.
2. Turn on Belt Thickener
 - Start air compressor
 - Start Hydraulic Pump and belt tensioner
 - Drop plows, Close floc tank drain valve
 - After belt is tensioned, Start belt and Turn on Water
 - Open valves from digester and start polymer pump
 - Ensure mixing valve is roughly 10% open.
3. Polymer feed is the same as shown above on the aerobic belt press operations.
4. Facilities should be cleaned at the end of each day of operation.

Biosolids Loading

1. Aerobic and Anaerobic biosolids are loaded to the temporary storage hopper by conveyor. The hopper feeds to the mixer truck/loader on a periodic basis.
2. In auto operation the hopper opens when the weight reaches 4,000 pounds. There is usually sufficient time for cycling of the mixer truck. If the hopper is filling too fast, operations should be switched to manual. If using the loader operator can adjust weight limit.
3. Anaerobic biosolids are pumped to the spreader from the belt thickener hopper by diaphragm pumps.
4. Ensure before turning on the diaphragm pumps that the discharge hose is situated in the spreader. Once the diaphragm pumps are turned on, it usually takes about 15 – 20 minutes to fill.
5. It is important to not overfill the spreader or the mixer truck. Messes in the solids loading building are damn hard to cleanup.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	Changed minor grammatical errors/ Updated Equipment	12/06/2017
9	Changed minor operational procedures	10/26/2020
10	Added Anaerobic Biosolids – Belt Presses	4/06/2023

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #009
Preparation of Admixture – Wood Grinding**

Created/Approved: *Sept 20, 2007* **By:** *Board of Trustees*
Date issued: *Sept 20, 2007*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to outline the process for grinding wood waste as preparation for use as an admixture in the composting process. In general, District staff will maintain operational control over the grinding process either with equipment and equipment operation from a local supplier or through the use of District equipment directly. When using the District grinder the training video for “Tub Grinder Operations.”

Operating Requirements:

Wood Waste Review

1. District staff will review wood waste as it is received to identify objectionable materials as discussed in SOP’s 2 & 3.
2. The grinder equipment operator shall also visually inspect wood as it is being loaded into the grinder to further identify items of an objectionable nature. Such items should be set aside for disposal.
3. Wood grinding will normally be scheduled when one of the following conditions apply:
 - a. When about one month of ground wood remains in the admixture pile,
 - b. When the un-ground wood pile is of such a size that there is about one month remaining unused storage area, or
 - c. When grinding is convenient to the equipment supplier, when used, or the District staff. When District equipment is available, the un-ground wood pile will be kept to a reasonably small size.

Grinding Operation

1. The District Manager, in conjunction with the Superintendent will determine the screen size to use in the tub grinder. This screen size will be communicated to the equipment supplier or equipment operator. The screen size will usually be smaller when the oversized wood pile created

- after trammel screening is re-ground. Should questions occur about grinder operations, the operator should refer to the training video.
2. District staff will direct the grinding and determine daily operation in cooperation with an equipment supplier, if one is used. When an equipment supplier is used, they will be responsible for supplied equipment operation.
 3. All concerns associated with the day to day operations process will be referred to the District supervisory staff for review. Unresolved issues should be elevated to the District Manager.
 4. Should an emergency occur, District staff will respond. The equipment operator should be concerned with personal safety and should evacuate the site unless directed otherwise by District management staff. In no case, when an equipment supplier is used should the equipment supplier's staff be asked or should they be allowed to volunteer to perform tasks for which they are not qualified or trained.
 5. Grinding will usually continue until all of the virgin wood and screen oversized material is ready to be used as admixture, unless instructed otherwise by the District Manager.
 6. Operation of District owned grinding equipment should be operated in accordance with the training video for that equipment.

Equipment Supplier Responsibilities – When Used

The equipment supplier is responsible for the following activities:

1. Read and be aware of the District Mission and Biosolids Management Policy.
2. Provide adequate training for employees on equipment operation.
3. Follow District SOP #9 for grinding operation.
4. Respond to staff as directed and as needed.
5. Follow District emergency preparedness and response plan as directed by District staff.
6. Prepare records if requested by District staff. Normally the District will maintain all required records required for biosolids operation. The equipment supplier will not be required to maintain or prepare any monitoring or measurement procedures, nor will they be required to establish document control procedures. The only record the equipment supplier must maintain is a report (invoice) for hours worked and repairs/supplies needed.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	No change to this SOP	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #010
Dust Production Activities - Safety**

Created/Approved: *July 10, 2008* **By:** *Board of Trustees*
Date issued: *July 10, 2008*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to stipulate safety procedures when activities which create compost dust occur. Compost dust contains items such as Aspergillus Fumigatus, endotoxins, and/or organic dust which may cause respiratory or other problems in immunocompromised individuals. This SOP should be followed when any concerns or potential exists for respiratory distress during the composting activities

Operating Requirements:

Compost Screening

1. Operators involved in the screening process, either directly or indirectly through equipment operations, should be aware of their respiratory condition. Generally, operators cleared by their physician for respirator use are deemed to be capable of working in screening operations.
2. Depending on the operators specific health condition, one or multiple barriers should be used during screening.
3. Acceptable barriers would include:
 - a. Working from within an enclosed cab of a loader or trackhoe,
 - b. Using an OSHA/NIOSH approved dust mask,
 - c. Use of an OSHA/NIOSH approved half face respirator, or
 - d. Any other appropriate barrier.
4. Operators should always be aware of protecting their health.

Wood Waste Grinding

Wood waste grinding produces less dust than screening but should still be considered a potential risk if any respiratory problems are present. When an operator believes that dust and thus, risk exists, barriers such as those stipulated above should be used.

No documentation is needed to substantiate compliance with this SOP. Supervisory staff should discuss needs with each operator, as appropriate.

Rev #	Brief Description	Date
1-6	Various historic actions prior to 10/9/2011	5/11
7	No change to this SOP	3/17/2012
8	No change to this SOP	12/06/2017
9	Block Header changed from “reviewed” to “revised”	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #011
Odor Reduction Agent Addition**

Created/Approved: *October 12, 2014* **By:** *Board of Directors*
Date issued: *October 12, 2014*
Date last revised: *September 7, 2021* **By:** *David Hatch, PE*

Objective: The objective of this SOP is to define procedures for adding odor reducing chemical to the aerobic biosolids and wood chips mixture as part of the composting process. This amendment will be added to the fresh compost when it is anticipated that odors may be a problem to neighbors. This is based on regular climatic conditions and may be adjusted at the operators discretion.

Operating Requirements:

Odor Reducing Chemical Addition

1. Operators involved in the chemical addition should used the standard safety precautions for all plant activities. In addition, during transfer and blending of the concentrated odor reducing chemical, rubber gloves are also recommended.
2. The following steps should be followed in adding concentrated odor reducing chemical to the day tank:
 - a. The blend tank should be mostly empty with about 12-inches of blended liquid remaining. Water should be added to the blend tank until the tank is almost full. Be careful to monitor for excessive foam.
 - b. Using the transfer pump. Approximately 6.25-inches of concentrate from the drum should be pumped into the blend tank. The quantity transferred is about 10 gallons. This quantity can be adjusted if the blend tank is fuller when the transfer takes place.
 - c. After transfer of the concentrate the blend tank should be topped off and the water and concentrate stirred with the mixer for about 10 minutes. If it appears that the blended liquid is separated, the mixing process can be repeated.

3. Addition of the blended liquid to the mixer truck should follow the following steps:
 - a. The truck should be placed under the hopper discharge chute. The mixer in the truck box should be turned on at a full load of dewatered aerobic biosolids should be added to the mixer truck.
 - b. Next, ground wood waste should be added to the mixer truck.
 - c. During the mixing process, approximately 5 gallons of blended liquid odor reducing chemical should be added to a full load of dewatered aerobic biosolids. The metering pump should then be shut off and the addition line will be allowed to drain for another 45 seconds.
 - d. After addition of the odor reducing chemical and the draining of the feed line, the hopper should be closed and the mixer truck will have a full load of aerobic biosolids.
 - e. The mixer truck can then be mixed and emptied as per the composting SOP.

No documentation is needed to substantiate compliance with this SOP.

Rev #	Brief Description	Date
1	Various historic actions prior to 10/9/2011	10/12/2014
2	Changed minor grammatical errors/ Updated	12/06/2017
3	Block Header changed from “reviewed” to “revised”	11/09/2018
3	Minor operational changes	09/07/2021

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #012
Class A EQ Composting – Aerated Static Piles**

Created/Approved: *October 12, 2014* **By:** *Leland Myers, District Manager*
Date issued: *October 12, 2014*
Date last reviewed: *October 26, 2020* **By** *David Hatch, PE*

Objective: The objective of this SOP is to ensure adequate aerated static pile composting operation which produces compost meeting the exceptional quality, Class A pathogen standard and a Vector Attraction Reduction (VAR) standard. In order to do this, 40 CFR Part 503 Table 3 metal concentrations and aerated static pile compost time, temperature, and turning requirements must be met. Specifically using the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for three days, In addition, in order to meet VAR requirements the aerated static pile shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

Operating Requirements:

Wood Waste – Admixture Preparation

1. The District receives construction wood waste and yard waste periodically throughout the year. The wood waste and yard waste will be visually monitored for objectionable materials. Examples of objectionable materials are steel or hard objects which may harm the hammers(excludes nails) , plastics or other “garbage type material which does not readily biodegrade, root balls from trees, and wood waste such as railroad ties which may be spiked with steel objects or contain treatments which may impact the compost quality. Should objectionable materials be identified by any staff member, the District Manager should be immediately notified in order to require the supplier of the wood waste to take immediate action to eliminate objectionable items. If the supplier does not correct the problem, the supplier should be stopped from further delivery of waste materials.
2. Periodically throughout the year, the District will grind the wood waste in an in-line grinder or similar piece of equipment. Grinding is normally done by District staff, utilizing District equipment. However, in

emergency situations the District may use a contractor to complete the grinding. The grinding operation shall conform to SOP #9.

3. During the screening of finished compost, oversized compost wood chips will be stored and may be periodically re-ground. Recycled wood chips will be returned to the composting process.
4. Fresh and recycled wood chips shall be used in the composting process.

Compost Preparation

1. Hooking the piping system up to the blower and covering the aeration pipe with wood chips two feet on each side of the pipe and one foot over the pipe prepares the aerated static pile bed.
2. Dewatered biosolids from the screw/belt presses shall be mixed with wood chips in the truck mounted mixer. QuikSoil 2900 may be added to the mixture in accordance with SOP #11. If the truck mixer is out of service, a loader can be used as backup for the mixing process. Wood chips and compost are mixed in an approximate 3:1 ratio by volume or 1:1 by weight. This volume ratio may be adjusted by the operator based on current ambient temperatures, moisture of the wood waste, and other salient factors. Generally, adjustments are based on operator experience and the exact mix is not important.
3. About two weeks of production are combined into a single pile. Each day's production is stacked in the pile and capped with wood chips for odor control. Generally piles are about 20 feet at the base and 12 feet tall at the top and are in a triangular shape. A two week pile is about 120 feet long and there are up to twelve piles available in the aerated static pile area. Actual pile dimension is flexible based on ambient conditions and operator judgment. At the end of the one week period, the aeration blowers are started and operated at an approximate ratio of 7-10 minutes on and 50 minutes off. At the end of the second week move temperature probe to the second half of the pile. Each pile is assigned a unique pile number by the operator responsible for records and the start date is recorded in the compost pile records. The pile number is normally the start date of the pile in month/day/year convention. A records sheet is prepared for each pile showing the pertinent information including pile temperatures during the fourteen-day regulatory period.

Compost Regulatory Period

1. The regulatory period shall be at least 14 days. During this period the compost shall be monitored to ensure regulatory compliance.
2. Pile temperatures are to be recorded on the pile record sheet daily by the operators. The recorded temperature shall be the average of one or more temperature readings taken by the operator. The number of readings shall be sufficient, in the opinion of the operator based on visual and other indicators, to be representative of the pile. Compost temperature readings

should be taken at least three feet below the pile surface and in locations representative of the entire pile. The average temperatures need to be above 55 degrees Celsius.

3. Once the regulatory period has been met, the operator responsible for records shall cease to maintain pile records.

Compost Curing and Screening

1. Compost will, generally, be cured in the individual piles for an additional few weeks before being moved to the screening area for final curing.
2. Final curing will take an additional two to six months more or less until a stable viable product is produced. The operator shall use best professional judgment in curing times. Temperature, visual moisture content, and odors will be used as part of the judgment process.
3. After curing, finished compost shall be periodically screened to produce an acceptable final product. Screened compost will be stockpiled for distribution and marketing.

Rev #	Brief Description	Date
1	SOP Written	10/12/2014
2	Changed minor grammatical errors	12/06/2017
3	Changed minor operational procedures	10/26/2020

**Central Davis Sewer District
Compost Pile # 141020**

Ac/on Item	Date	Temperature		
		Time	Temperature	Operator Ini/als
Begin Pile Construc/on	Monday, October 20, 2014			
Temperature Monitoring	Monday, October 27, 2014			
	Tuesday, October 28, 2014			
	Wednesday, October 29, 2014			
	Thursday, October 30, 2014			
	Friday, October 31, 2014			
	Saturday, November 01, 2014			
	Sunday, November 02, 2014			
	Monday, November 03, 2014			
	Tuesday, November 04, 2014			
	Wednesday, November 05, 2014			
	Thursday, November 06, 2014			
	Friday, November 07, 2014			
	Saturday, November 08, 2014			
	Sunday, November 09, 2014			
	Monday, November 10, 2014			
	Tuesday, November 11, 2014			
	Wednesday, November 12, 2014			
	Thursday, November 13, 2014			
	Friday, November 14, 2014			
	Saturday, November 15, 2014			
	Sunday, November 16, 2014			
Pile Complete	Monday, November 17, 2014			

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #013
Landfilling of Biosolids**

Created/Approved: *July 21, 2015* **By:** *Leland Myers, District Manager*
Date issued: *July 21, 2015*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to provide instruction for the landfilling of biosolids at the Wasatch Regional Landfill. Biosolids will be landfilled when one of the following conditions are met:

1. Not enough adequate bulking agent is available for composting.
2. Odor complaints preclude the continued composting of biosolids and wood waste. Generally, this condition only occurs during the winter/cold weather periods.
3. In emergencies when beneficial reuse is not available due to some equipment failures.

The District will encourage the landfill operator to use the biosolids in a beneficial manner such as daily cover or in restoration of the landfill site when possible.

Operating Requirements:

Permitting Requirements

1. The District Manager will maintain a contractual arrangement with the landfill operator at all times. This contract is available in the District Manager's office for inspection.
2. The operator/truck driver will prepare and carry the Non-Hazardous Waste Manifest required by the landfill. A copy of this manifest is included with this SOP. The Completed manifest should be returned to the accounting office for inclusion in the invoice payment process.

Transporting to Landfill

1. Staff using the dewatering equipment, the overhead hopper and a loader will fill the truck and any associated trailers. Trucks should be filled such that the biosolids do not flow over the top of the truck or trailer bed walls.

2. During transportation the loads may be covered to prevent accidental spillage while on the road.
3. The driver should follow the following route:
 - i. Treatment plant to I-15 using Shepard
 - ii. I-15 South to I-80 West
 - iii. I-80 West to landfill exit, Skull Valley Road. The address of the landfill is 8833 North, Rowley Rd, North Skull Valley, UT 84029.
 - iv. Care should be taken when crossing railroad tracks on this road.
 - v. Proceed to the landfill where the truck will be weighed and the manifest reviewed and executed. Follow the directions to the tipping point, off load the truck and trailer as needed. Return to the weigh station for empty weight measurement.
 - vi. Return to the plant following the same route taken to get to the landfill.
4. The route may be modified as needed based upon road conditions, construction activities or other detours.

Rev #	Brief Description	Date
1	SOP Written	7/21/2015
2	SOP Updated	12/06/2017
3	Block Header changed from "reviewed" to "revised"	11/09/2018

Please print or type
(Form designed for use on effite (12-pitch) typewriter.)

**NON-HAZARDOUS
WASTE MANIFEST**

1. Generator's US EPA ID No.
UT0020974

Manifest Doc. No.

2. Page 1
of

3. Generator's Name and Mailing Address **Central Davis Sewer District**
2200 So. Sunset Dr. Kaysville Ut. 84037

4. Generator's Phone (801) 451-2190

5. Transporter 1 Company Name
Same as Generator

6. US EPA ID Number

A. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
Same as Generator

10. US EPA ID Number

C. Facility's Phone

801-451-2190

11. Waste Shipping Name and Description

12. Containers
No. Type

13. Total
Quantity

14. Unit
Wt/Vol

a. **Wastewater Treatment Plant Aerobic Biosolids**
Waste Profile Number - 41861315920

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

None

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

None

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name **Leland Myers**

Signature

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name **N/A - Same as Generator**

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

Same as Generator

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year

GENERATOR

TRANSPORTER

FACILITY

Please print or type
(Form designed for use on effite (12-pitch) typewriter.)

**NON-HAZARDOUS
WASTE MANIFEST**

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8. US EPA ID Number

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Same as Generator

10. US EPA ID Number

C. Facility's Phone

801-451-2190

11. Waste Shipping Name and Description

12. Containers

13. Total
Quantity

14. Unit
Wt/Vol

a. Wastewater Treatment Plant Aerobic Biosolids
Waste Profile Number - 41861315920

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

None

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

None

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Leland Myers

Signature

Month Day Year

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Printed/Typed Name
N/A - Same as Generator

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

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20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year

GENERATOR

TRANSPORTER

FACILITY

Please print or type
(Form designed for use on effite (12-pitch) typewriter.)

**NON-HAZARDOUS
WASTE MANIFEST**

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UT0020974

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8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
Same as Generator

10. US EPA ID Number

C. Facility's Phone

801-451-2190

11. Waste Shipping Name and Description

12. Containers

13. Total
Quantity

14. Unit
Wt/Vol

a. Wastewater Treatment Plant Aerobic Biosolids
Waste Profile Number - 41861315920

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

None

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

None

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name
Leland Myers

Signature

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name
N/A - Same as Generator

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

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20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year

GENERATOR

TRANSPORTER

FACILITY

Please print or type
(Form designed for use on effite (12-pitch) typewriter.)

**NON-HAZARDOUS
WASTE MANIFEST**

1. Generator's US EPA ID No.
UT0020974

Manifest Doc. No.

2. Page 1
of

3. Generator's Name and Mailing Address
Central Davis Sewer District
2200 So. Sunset Dr. Kaysville Ut. 84037

4. Generator's Phone (801) 451-2190

5. Transporter 1 Company Name
Same as Generator

6. US EPA ID Number

A. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
Same as Generator

10. US EPA ID Number

C. Facility's Phone

801-451-2190

11. Waste Shipping Name and Description

12. Containers

13. Total
Quantity

14. Unit
Wt/Vol

a. Wastewater Treatment Plant Aerobic Biosolids
Waste Profile Number - 41861315920

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

None

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

None

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name
Leland Myers

Signature

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name
N/A - Same as Generator

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

Same as Generator

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year

GENERATOR

TRANSPORTER

FACILITY

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #014
Secondary Digester (Duo-sphere)**

Created/Approved: *December 06, 2017* **By:** *David Hatch, PE*
Date issued: *December 06, 2017*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to ensure adequate digester operations which comply with the requirements found in 40 CFR Part 503 for a process to significantly reduce pathogens and to meet vector attraction reduction standards. Specific standards are that the anaerobic digester shall remain above 35°C for 15 days HRT and that a volatile solids reduction of at least 38% must take place in the digester. The secondary digester is not heated however the storage volume does count towards the required HRT.

The Duo-sphere contains an inflatable membrane gasholder for digester gas storage. The digester gas is currently flared and not used by gas withdrawal equipment. The SOP would have to be re-written if the digester gas is used and/or the digester gas pressure is increased. The digester gas pressure is set by the back pressure device in the digester room which then affects the air pressure setpoint of the gas holder membrane. The majority of the digester gas is made in the primary digesters and then stored in the secondary digester duo-sphere through interconnected gas piping.

Operating Requirements:

Digester HRT

1. Digester HRT's are determined based on the pumping flow rates and times of the pump system. Should any operator change the timers, they must notify the Biosolids Coordinator so that new HRT calculations can be made.
2. The HRT Spreadsheet will be completed (SOP #1), usually the same day, to ensure compliance with the minimum of 15 days. The spreadsheet will include calculations for residence time in both primary and secondary digesters.
3. Should any changes to pump rate or frequency occur which causes the cumulative HRT to fall below 15 days, the Engineer should be immediately notified so that corrective action can be taken.

Daily Operation

1. Verify gas PRV is not frozen shut or blocked.
2. Verify air PRV is not frozen shut or blocked.
3. Maximum level in secondary digester is 18.5 ft. The high alarm is set at 19 ft. Do not exceed the maximum level set point or the sludge will plug the gas piping to the gas PRV which would result in over-pressurizing the inner membrane and cause a rupture.
4. The minimum level in the secondary digester is 15.5 ft. Any lower gas pressure could deflate the membrane sufficiently to have the inner membrane rest on the guide wires – which could result in damaging the inner membrane.

Rev #	Brief Description	Date
1	SOP Written	12/06/2017
2	Block Header changed from “reviewed” to “revised”	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #015
Emergency Action for Biosolids Transportation
Release**

Created/Approved: *December 06, 2017* **By:** *Leland J. Myers*
Date issued: *December 06, 2017*
Date last revised: *November 09, 2018* **By:** *Jill S. Jones*

Objective: The objective of this SOP is to ensure adequate measures are taken in the occurrence of a biosolids release during transportation.

Operating Requirements:

Should a biosolids release occur during transportation of biosolids off site of the District property, the following response is required:

1. When driver becomes aware of the release he/she should pull to the side of the road and determine the extent of the release. If the threshold quantity does not exceed three cubic yards and the release has been spread uniform across the road such that it does not create a hazard to the other drivers the cause of the release should be contained, and the trip resumed.
2. If the release does exceeds three cubic yards or creates a hazard for others, the driver should immediately contact the local police jurisdiction and report the release.
 - a. For Kaysville this phone number would be (801) 546-1131.
 - b. For Highway Patrol 801-965-4518.
 - c. If the product being hauled is finished compost, then the only consideration necessary is to abate a hazard.
3. If there a significant threat for life or health the driver should call 911.
4. After contacting the appropriate authority, the driver should contact the District Manager or staff member in charge.
5. If it is safe to clean up the release this should be indicated to the District Manager, and appropriate staff and equipment will be sent.

In general, the driver should always consider health and safety of himself/herself and others first. After ensuring that this is met, then protection of the environment is a secondary consideration.

Rev #	Brief Description	Date
1	SOP Written	11/09/2018

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #016
Digester Cleaning**

Created/Approved: *January 10, 2019* **By:** *David Hatch, PE*
Date issued: *January 10, 2019*
Date last reviewed: *July 22, 2020* **By:** *David Hatch, PE*
Date last revised: *July 22, 2020* **By:** *David Hatch, PE*

Objective: The objective of this SOP is to ensure adequate HRT in the digesters. One digester will be cleaned annually to remove the inorganics from the digesters to ensure the 15-day HRT and to inspect the infrastructure.

Operating Requirements:

1. 15 days prior to cleaning a digester shut the primary flow valves off to the digester being cleaned. Keep the draft tube mixers on until 15 days have passed to ensure sufficient mixing and heating for the required HRT. Adjust the feed from the clarifiers to the primary digester not being cleaned to maintain HRT. When cleaning the secondary digester shut off the valves to the secondary digester.
2. Turn off mixers to the primary digesters being cleaned when the level is below the mixer draft tubes. This ensures solids and snails are suspended for as long as possible. The secondary digester does not have any mixers.
3. Remove the solids directly from the digester being cleaned by thickening digested solids using the Gravity Belt Thickener until no longer able to remove the solids from digester using gravity belt thickener pumps. These pumps will get to the top of the hatch.
4. Connect the Trash Pump to remove the solids until it is below the exterior hatch. Connect water hose to exterior valve on hatch to create a slurry to facilitate pumping. Pump directly into the spreader to land apply. Follow manufacturer's recommendations when emptying secondary digester for the Duo-sphere.
5. Remove exterior hatch.
6. Using Trash pump remove the solids from the digester cone by using utility water to spray down the cone towards the suction hose of the pump.
7. Follow safety procedures for entering confined space.
8. When safe to enter digester - inspect digester. Perform repairs if needed.
9. Replace door gasket and reinstall exterior hatch.
10. Fill digester by transferring solids from the operational digester into the now cleaned digester until the solids level submerges the lower mixer tube. Turn on mixer. Keep digester gas valve open
11. Open valves and fill with heated primary solids. Close digester gas valve.

Rev #	Brief Description	Date
1	SOP Written	01/19/2019
2	Minor operational revisions	07/22/2020

**Central Davis Sewer District
Biosolids EMS**

**Standard Operating Procedure #017
Screw Press Operations**

Created/Approved: *January 10, 2019* **By:** *David Hatch, PE*
Date issued: *January 10, 2019*
Date last revised: *March 19, 2020* **By:** *David Hatch, PE*

Objective: The objective of this SOP is to outline the operating procedure for the two FKC screw presses. The screw presses only dewater the WAS off the oxidation ditches from clarifiers 3 and 4. There are two ways of operating the screw presses: (1) inDENSE hydrocyclones and (2) bypass inDENSE hydrocyclones. The preferred method is to operate through the hydrocyclones.

Operating Requirements:

Aerobic Biosolids – Screw Presses

12. Hydrocyclone operation - Unless the flows are abnormally high, only one of the clarifiers (3 or 4) will be set to thicken the biosolids for feeding the screw presses.
 - a. When operating the inDENSE hydrocyclones adjust the number of hydrocyclones operating depending on the hydrocyclone overflow TSS. If the hydrocyclone overflow TSS is above 1.40% at startup of the screw presses - only operate two hydrocyclones per skid. If the TSS is below 0.80% at startup of the screw presses - turn on three hydrocyclones per skid. Verify the pressure gauges are operating at 35 PSI. Verify there is a flow split between the WAS feed and the hydrocyclone overflow. If there is no flow split check the hydrocyclones for blockage. The hydrocyclone flow should normally be around 70% of the WAS feed.
 - i. Manual Control
 1. Turn on the RAS pump on manual full speed (60 hz) operation until the TSS concentration is below 1.3%. When the TSS concentration reaches the desired value turn on three hydrocyclones per skid. The TSS should be between 0.85% and 1.3%. If the TSS concentration is below 0.85% turn off the RAS pump until the concentration increases. Turn on the RAS pump to minimum speed (28 hz) and/or cycle the RAS pump

on/off to maintain the desired TSS concentration during the day. Watch the TSS concentration throughout the day and verify the TSS is remaining constant.

ii. Automatic Control

1. On the WAS Dewatering screen on SCADA there is an input box that allows the operator to input the desired setpoints and allow the RAS pumps to turn on and off automatically depending on the WAS overflow TSS probe concentration. The operator does not need to disable the TSS control. The TSS control is only operational when the WAS pumps are on. When the WAS pumps are off the clarifiers will be controlled by however they were last set by the operator on the RAS pump screen.
 - b. When bypassing the inDENSE hydrocyclones manually turn the valves located under the flocc tanks to bypass the hydrocyclones. There are no TSS probes when in bypass therefore the Screw Presses polymer will have to be ran in manual. See item 6 below for determining the polymer setpoint.
13. Verify there is oil for the conveyor and ensure the auto-oiler to the conveyor is on.
 14. Start the sequence for automatic, constant flow for screw presses 1 and 2.
 15. Verify WAS flow – if no flow prime pump. Match WAS flow to TSS for lb/hr. See attachment.
 16. Verify polymer flow to day tanks. The day tanks are set to use most of the polymer daily to ensure the most active polymer. If no flow troubleshoot the Polyblends by checking the following:
 - a. The power to the Polyblend has been disconnected.
 - b. The polymer tote is empty.
 - c. The Polyblend is plugged with polymer or has lost prime on the pump. This is identified by clear water being in the blend tank.
 17. Check floc structure in each of the flocc tanks. The polymer dose is right when the floc structure is small like “taco bell ground beef.” There is no need to adjust the flocc tank mixer unless the type of polymer has been changed.
 18. After headbox has reached operating level and the screw presses have started check the pressate for clarity.
 19. Monitor cake plug continuously. The cake should be excreted out the press around the entire circumference. Take one sample from each screw press after a minimum of two hours of run time to allow the sludge to run through the screw press discharge for daily operation.
 20. Spray down the screw presses with the pressure washer as needed to avoid polymer build up on the drum screen. This can be done while the screw presses are operational. Blinding of the drums only happens when the polymer setpoint is too high and is overdosing. A good setpoint will allow the screw presses to operate continuously during the week with no significant cleaning of the drum.

21. On screwpress shutdown allow 30 minutes for screw presses and 5 minutes for the conveyor for complete shutdown.
22. Ensure conveyor auto-oiler is off.
23. At the end of everyday turn the RAS pump back in auto level control and auto speed control in SCADA for clarifier level control.
24. At the end of every week thoroughly washdown the screw presses drum screen to wash off polymer residue from the first two drums. This is done when the first two drums are empty of sludge. Additionally clean the hydrocyclone nozzles at the end of every week or when the hydrocyclones will not be operational longer than 3 days.
25. After the operator has reached the desired SRT at the end of the week in the oxidation ditches turn the RAS pump in manual full speed.
26. After the operator has taken the MLSS sample on Sunday turn the RAS pump back on to auto level control and auto speed control in SCADA to allow for thickening prior to dewatering on Monday.

Biosolids Loading

1. Aerobic biosolids are loaded to the temporary storage hopper by conveyor.
2. The aerobic biosolids are either landfilled or composted.
 - a. Landfill biosolids – ensure an even distribution of weight in the trailer by moving the truck occasionally to have the hopper discharge uniformly in the trailer.
 - b. Compost biosolids - In auto operation the hopper opens when the weight reaches at an operator adjusted set point. Adjust set point to allow biosolids to be mixed in the compost truck.

Rev #	Brief Description	Date
1	SOP Written	01/10/2019

Attachment SOP 17

TSS Inlet Consistency	dry solids lb/hr	WAS Feed gpm
0.80%	596	149
0.82%	596	145
0.84%	596	142
0.86%	596	138
0.88%	596	135
0.90%	596	132
0.92%	596	129
0.94%	596	127
0.96%	596	124
0.98%	596	122
1.00%	596	119
1.02%	596	117
1.04%	596	115
1.06%	596	112
1.08%	596	110
1.10%	596	108
1.12%	596	106
1.14%	596	104
1.16%	596	103
1.18%	596	101
1.20%	596	99
1.22%	596	98
1.24%	596	96
1.26%	596	95
1.28%	596	93
1.30%	596	92
1.32%	596	90
1.34%	596	89
1.36%	596	88
1.38%	596	86
1.40%	596	85

TSS Inlet Consistency	dry solids lb/hr	WAS Feed gpm
1.42%	596	84
1.44%	596	83
1.46%	596	82
1.48%	596	80
1.50%	596	79
1.52%	596	78
1.54%	596	77
1.56%	596	76
1.58%	596	78
1.60%	596	74
1.62%	596	74
1.64%	596	73
1.66%	596	72
1.68%	596	71
1.70%	596	70
1.72%	596	69
1.74%	596	68
1.76%	596	68
1.78%	596	67
1.80%	596	66
1.82%	596	65
1.84%	596	65
1.86%	596	64
1.88%	596	63
1.90%	596	63
1.92%	596	62
1.94%	596	61
1.96%	596	61
1.98%	596	60
2.00%	596	60
2.02%	596	59

$$\text{GPM} = \frac{596 \text{ dry lb}}{1 \text{ hour}} \times \frac{1 \text{ hour}}{60 \text{ min}} \times \frac{1 \text{ wet lb}}{[C] \text{ dry lb}} \times \frac{1 \text{ gal}}{8.34 \text{ wet lb}}$$

Example

$$85 = \frac{596 \text{ dry lb}}{1} \times \frac{1}{60} \times \frac{1}{0.014} \times \frac{1}{8.34}$$

Central Davis Sewer District EMS

Odor Management Plan

ODOR MANAGEMENT STATEMENT

Central Davis Sewer District desires to be a good neighbor for the surrounding community. As such, the District will strive to prevent the migration of odors off District property. Within available budget constraints and equipment capacity, the District will respond to any and all complaints that it may receive about potential odors from the facility. Should offending odors be found offsite, the Staff of the District will operate available odor neutralizing equipment to lessen the impact of said odors on the Public. Any citizen wishing to discuss concerns related to odors is encouraged to meet with the Board at regular Board meetings.

ODOR RESPONSE PROGRAM

District Staff will respond to odor complaints in an expeditious and courteous manner. All complaints should be approached as a valid odor concern and investigated to determine the exact source and strength of the odor. The following tests should be performed:

Dilutions to Threshold using the Nasal Ranger
H₂S Evaluation using the Jerome 631X

The results of each test should be recorded. In addition, if elevated levels of H₂S are detected, other sites in the direction of the wind, up wind and downwind of the plant should also be tested to eliminate the GSL as the odor source. When an odor complaint is received, the attached flow diagram should be consulted and the appropriate action taken until an appropriate end point is reached. Any difficult complaints should be referred to the District Manager for action. Whenever requested, odor neutralization should be operated to mitigate possible odor problems.

The following individuals have been trained in odor evaluation:

Jill Jones
Manjot Masson
Brent Justensen

Dave Barnes
Trace Workman
Nate Cloward

John Woodrow
Brett Jorgensen
Jace Woodrow

ODOR MITIGATION PROGRAM

The Board for Central Davis Sewer District has determined that it is responsible and prudent to install an odor neutralization system. Such a system allows for the dispersal of a neutralizing agent in and around the composting area. The District will operate said equipment during compost pile mixing when ambient weather conditions indicate that prevailing winds may transport odors offsite toward occupied homes or businesses. Such equipment may also be operated when a resident, in reasonably close proximity to the treatment plant, notifies the staff, during normal working hours, that an outdoor event is taking place and the resident wishes the equipment to be operated. The exception to this rule would be when prevailing wind conditions preclude transport of odors toward residential areas.

In addition to the neutralizing system, the District will continuously monitor odor complaints to determine if additional action is needed. This will be an ongoing program.

DRAFT TECHNICAL MEMORANDUM**CH2MHILL**

Central Davis County Sewer District Wastewater Treatment Plant Odor Management Plan

PREPARED FOR: Leland Myers, General Manager, Central Davis County Sewer District

FROM: Jennifer Barnes/CH2M HILL
Jay Witherspoon/CH2M HILL
Miaomiao Zhang/CH2M HILL

COPIES: Jim Schwing/CH2M HILL

DATE: November 4, 2003

Executive Summary

The Central Davis County Sewer District (CDCSD) owns and operates a wastewater treatment plant (WWTP) serving the Farmington, Fruit Heights, and Kaysville areas. The CDCSD WWTP is located near the western edge of Kaysville, with a small number of residences near the plant. However, the surrounding community is growing rapidly. Historically, CDCSD has relied on operational odor control practices to limit the off-site odor impacts and the number of odor complaints. However, these odor control practices may have become insufficient because of the increased awareness of the neighborhood and recent odor complaints. CDCSD has made a commitment to the neighborhood to strive to prevent the odors from migrating off CDCSD property.

It is not reasonable to expect that a treatment plant will never have odors. Neighbors of treatment plants will typically tolerate odors for small portions of time. Treatment plants located in residential communities typically have odor goals of ranging from 4 to 20 dilutions-to-threshold (D/T) with an allowance of 100 hours a year to exceed the threshold. The allowance is to provide a margin of error. Under normal operating conditions the plant is expected to meet its odor threshold. However, plant upsets and equipment failures may occur. These abnormal operations would be acceptable within the time period allotted for the allowable hours above the threshold. Commercial/ industrial communities typically have odor goals of 20 D/T or higher with a similar allowance of 100 hours a year to exceed the threshold.

As part of this Odor Management Project, CDCSD set an odor threshold goal of to not cause an off-site odor impact of:

For 98 percent of the time, CDCSD will not have a noticeable off-site odor impact (will not exceed 20 D/T with an allowance of 175 hours)

At all times, CDCSD will not have a significant, strong odor (will not exceed 50 D /T).

Dispersion modeling was used to estimate the baseline off-site odor impacts from the plant and to quantify the reduction in impacts using different odor control strategies. Data from field sampling conducted in the summer of 2003, physical parameters of the odor sources, local topography and meteorological data from Salt Lake City International Airport were input to the air dispersion model. The results were used to rank odor sources and prioritize recommended improvements.

Baseline Modeling

CH2M HILL entered the odor emission rates from the source sampling and source parameters into an air dispersion model, Industrial Source Complex - Short Term Version 3 (ISCST3). This model predicted off-site odor impacts at numerous receptor locations surrounding the CDCSD site. One year (1999) of meteorological data from Salt Lake City International Airport was used to characterize the dispersion environment in the model.

The baseline odor assessment included all the treatment processes units typically on-line in the summer. Three baseline models were run using different 5-minute odor threshold values: 4 D/T, 20 D/T and 50 D/T. These two odor threshold values represent the three standards for barely noticeable odor above the background, slightly noticeable odor above the background, and significantly noticeable odor above the background, respectively.

Modeling Results

Figures 1, 2 and 3 show the number of hours when odor levels are above the odor threshold at each receptor. The area inside the circle, or isopleth, is the area impacted. The hatched isopleths represent a change in the gradient. If concentrations are tending downward, for example, the hatched area represents a slightly higher impact.

The overall odor impact from the existing sources at CDCSD based on a 5-minute averaging period and 4 D/T odor threshold level is shown in **Figure 1**. There are two enclosed circles in the plant area. The circle with the highest odor exceedence of about 500 hours per year is located at the land northwest to the plant, including part of the plant boundary. The other circle with the highest odor exceedence of about 300 hours per year covers the eastern portion of the plant and the area south of the plant. This distribution indicates that the highest odor exceedence over 4 D/T (about 500 hours per year) occurred at the plant northwestern boundary. The plant southern boundary could experience up to 300 hours when the odor is higher than 4 D/T each year. The western and eastern boundaries have less odor exceedences, which are about 100 hours per year.

The same isopleths were created for odor thresholds of 20 D/T and 50 D/T. As shown in **Figure 2** the number of hours that the odor exceeds 20 D/T is much less than those with odor exceeds 4 D/T. The highest odor impact was about 30 hours per year, and occurred east of the oxidation ditches. Most of the odor impact is centralized within the plant. The off-site odor impact may be up to 10 hours per year.

Figure 3 shows minor impact from the plant sources if the odor threshold is set at 50 D/T. The odor strength equal to or above 50 D/T will be perceived only about one or two hours each year at the plant northeast corner.

The highest off-site odor impacts from the baseline model were tabulated by source groups to assess their contribution to off-site impacts. **Table ES-1** presents the maximum 5-minute odor impacts and maximum annual average odor impacts expressed as D/T for each major process area (source group). The ratio of the maximum annual odor to the maximum 5-minute odor, peak-to-mean ratio, is a parameter indicating the frequency of the maximum odor occurrence, and is also shown in the table. Note that the maximum source group impacts are not additive because they occur at different times and locations.

The prioritization of the odor sources was based on the odor impact analysis and the peak-to-mean ratio analysis from the Baseline model. **Table ES-2** summarizes the ranking of the major odor sources (having an odor impact above 4 D/T) at the plant. In addition to the model results, the long-term observation from the plant staff on the odor occurrence was also considered during the odor sources prioritization.

TABLE ES-1
Maximum 5-Minute and Annual Average Odor Impacts from Existing Sources at Off-site Receptors

Source Group	Max. 5-min orr	Max. Annual orr	Peak-to-Mean (5-min Dff)/ (Annual Dff)
All Sources	67.5	0.625	108
Composting process	47.8	0.342	140
Solids building	44.9	0.294	153
Oxidation ditches	29.4	0.114	257
Headworks	9.0	0.017	516
Primary Clarifiers following Trickling Filters	5.7	0.015	373
Land application of biosolids	2.6	0.012	216
Trickling Filters	1.1	0.005	229
Secondary Clarifiers following Oxidation Ditches	1.0	0.005	196
Secondary Clarifiers following Trickling Filters	0.5	0.002	305

Notes:

Predictions based on 1999 surface meteorological data from Salt Lake City International Airport.

Model output was converted to 5-minute average concentrations using a factor of 1.64.

TABLE ES-2

Ranking of Odor Sources having Impact above 4 OIT at CDCSD Wastewater Treatment Plant

Rank	Source
	Compost process
2	Solids building
3	Oxidation ditches
4	Headworks
5	Primary Clarifiers following trickling filters

Modeling of Odor Control Alternatives

CDCSD plant currently does not have any odor control equipment and has been relying on the plant topography and significant buffer area surrounding the plant to minimize odor complaints. Two odor control scenarios were modeled in this analysis to investigate the effect of positively controlling the odor sources. The major sources, compost piles and the solids building vent, were selected based on the prioritization by the Baseline Model.

Control 1 - Upgrade the composting facility. Convert the current mechanic mixed composting to aerated static piles (ASPs). Treat the air collected at the bottom of the piles through a new biofilter.

Control 2 - In addition to Control 1, control the solids building vent. Route the foul air from the solids building vent to a new biofilter for treatment.

The odor exceedences above 20 D /T from all the plant processes under Control 1 condition is shown in **Figure 4**. Compared with the current condition (Baseline, **Figure 2**), the isopleths under Control 1 showed the similar shape, but reduced exceedences. The number of hours when the odor impact exceeds 20 D /T is only 10 to 20 in the northeastern portion of the plant. The odor is hardly noticed in the area south of the plant.

The odor impact of the plant processes with the odor threshold of 20 D /T during Control 2 is shown in **Figure 5**. By controlling both the compost piles and the solids building vent, the odor impact is reduced significantly. Under Control 2, most of the odor intensities are lower than 20 D /T. Only one or two hours each year the odor above 20 D /T occurs.

Recommendations

As the community surrounding the CDCSD becomes more odor sensitized it will be increasingly more important for the CDCSD to be seen as a good neighbor. Several recommendations are provided to be pro-active in the neighborhood. CDCSD should consider increasing public outreach efforts and informing key community members of plant upset conditions, for example, and steps being taken to address odor events.

Based on the results of the modeling analysis, short- and long-term odor control improvements are also recommended. These recommendations are based on CDCSD's goal of reducing off-site odor impacts of greater than 20 D/T to no more than two percent of the time. To accomplish this, the composting process should be upgraded to an ASP process that is vented to a biofilter.

If odor complaints to continue to be a problem, CDCSD should consider providing odor control for the solids building vent. This would require installing a biofilter and venting the solids building vent to the biofilter. The current flow rate may require increasing to provide 12 air changes per hour, to allow for staff working in the building.

A summary of recommendations, with capital cost estimates is included in **Table ES-3**. The capital costs shown are construction costs, without engineering, legal, and administrative fees, which are typically estimated to be 25 percent of the construction cost.

TABLE ES-3
Summary of Recommended Odor Control for CDCSD

Odor Source	Recommendation	Capital Cost
Composting process	- Convert to an ASP composting process	\$25,000
	- Vent ASP process air to a biofilter	\$20,000 - \$40,000
Solids Building	- Vent the solids building vent to a biofilter.	\$200,000 - \$375,000

Central Davis Sewer District EMS

Attachment 1

**FACT SHEET AND STATEMENT OF BASIS
CENTRAL DAVIS SEWER DISTRICT
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT0020974
UPDES BIOSOLIDS PERMIT NUMBER: UTL-020974
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT PROVISIONS (UTR000000)
MAJOR MUNICIPAL**

FACILITY CONTACTS

Person Name: Jill Jones
Position: District Manager
Phone Number: 801-451-2190 office
Email: jillj@cdsewer.org

Person Name: Manjot Masson
Position: Pretreatment Coordinator
Phone Number: 801-451-2190 office
Email: mkaur@cdsewer.org

Person Name: Manjot Masson
Position: Laboratory Director
Phone Number: 801- 451-2190
Email: mkaur@cdsewer.org

Person Name: Manjot Masson
Position: Biosolids Coordinator
Phone Number: 801-451-2190
Email: mkaur@cdsewer.org

Facility Name: Central Davis Sewer District
Mailing and Facility Address: 2200 South Sunset Drive
Kaysville, Utah 84037
Telephone: (801) 451-2190
Actual Address: 2200 South Sunset Drive
Kaysville, Utah 84037

DESCRIPTION OF FACILITY

The Central Davis Sewer District (CDSD) wastewater treatment facility was originally placed in service in 1961. The plant was constructed with one trickling filter, two rectangular clarifiers and an anaerobic digester.

The plant was upgraded in the 1970's with an additional secondary trickling filter, two circular clarifiers and additional digestion. In the 1980's a major upgrade was made which included a new headworks, the addition of an oxidation ditch and two final clarifiers, new chlorination equipment, contact basin and additional solids handling facilities including gravity belt thickeners and presses. In the 1990's CDSD expanded to meet the maximum population of the service area. This expansion included a second oxidation ditch, two clarifiers, additional chlorine equipment, a second contact basin and additional solids handling equipment.

The effluent from the wastewater treatment facility is discharged from outfall 001 to the Great Salt Lake. The design flow of the facility is 9.9 million gallons a day (MGD), with a design population equivalent of 65,000 people and an allowance for industrial waste. The discharge, Outfall 001, is located at latitude 40°59'54" and longitude 111°57'01". The CDSD serves the cities of Farmington, Fruit Heights, and Kaysville. The facility is located in Kaysville, Davis County, Utah.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

On December 16, 2014, the Utah Water Quality Board adopted *Utah Administrative Code (UAC) R317-1-3.3, Technology-Based Limits for Controlling Phosphorous Pollution*. The Technology-Based Phosphorous Effluent Limits (TBPEL) establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing. The TBPEL rule includes the following requirements for non-lagoon wastewater treatment plants:

The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020 unless a variance has been granted by DWQ.

Whole Effluent Toxicity (WET) monitoring requirements are based from the WET policy adopted January 2018.

DISCHARGE

DESCRIPTION OF DISCHARGE

CDSD has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. There have been no significant violations during the last permit cycle.

Outfall 001

Description of Discharge Point

Located at latitude 40°59'54" and longitude 111°57'01", the discharge enters an unnamed channel on the permittee's property and proceeds northwest continuing on the permittee's property in said unnamed channel into wetlands on the permittee's property and from there to the Great Salt Lake Transitional Waters then into Farmington Bay.

RECEIVING WATERS AND STREAM CLASSIFICATION

At current and anticipated Lake elevations for the duration of this permit, the discharge is to the Transitional Waters of Great Salt Lake and then to Farmington Bay, Great Salt Lake. According to the *Utah Administrative Code (UAC) R317-2-13*, the designated uses are 5E and 5D:

- | | |
|----------|--|
| Class 5E | Transitional Waters of Great Salt Lake. Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain |
| Class 5D | Farmington Bay of the Great Salt Lake. Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain. |

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD₅), E. coli and pH are based on current Utah Secondary Treatment Standards, *UAC R317-1-3.2*. The percent removal for BOD₅ and TSS are 80 percent due to the Inflow and Infiltration in the Collections System. The Division of Water Quality has determined that this discharge does not have reasonable potential to cause or contribute to a violation of water quality standards. An

Antidegradation Level II review is not required because the permit is being renewed with no changes and water quality will not be further lowered by the proposed activity, *UAC R317-2-3.5.b.1.(b)*.

No numeric criteria are available for the recreation or aquatic life uses in the Transitional Waters or Farmington Bay. The Level I anti-degradation review, protection of existing uses, was conducted in accordance with the *Interim Methods for Evaluating Use Support for Great Salt Lake Utah Pollution Discharge Elimination System (UPDES) Permits* (v. 1.0 January 4, 2016) (*Interim Methods*). No existing uses are identified that require more stringent protection than the designated uses.

As described in the *Interim Methods*, effluent pollutant concentrations were screened against Class 3D aquatic life numeric criteria to determine reasonable potential and the protection of the uses in accordance with the Narrative Standards. No dilution was assumed for the discharge to the Transitional Waters.

The source of the effluent data and parameters was the permit application. A reasonable potential analysis was conducted assuming no dilution. No pollutants demonstrated reasonable potential to cause or contribute to an exceedance of a water quality standard. Pollutants that required further evaluation are discussed in the following section.

Updates from the 2014 permit.

Ammonia.

In 2013, the USEPA published updated water quality criteria for ammonia. The applicability of these criteria for Farmington Bay were evaluated. The evaluation concluded that these are appropriate screening values for determining effluent limits for the discharge. Ammonia is generally toxic to aquatic life but species vary widely in their sensitivity. Ammonia is also a nutrient that is taken up rapidly by plants and bacteria when present at sub-toxic concentrations. Farmington Bay includes freshwater taxa such as daphnids and mayflies¹. Fish can be sensitive to ammonia and fish have been observed in Farmington Bay and surrounding wetlands. Fish are observed in similar freshwater habitats at Great Salt Lake and fish presence in nearby waters such as waterfowl management areas and observations of fish-eating birds support that fish may be considered residents for the comparison criteria. Studies are ongoing to better characterize the distribution of fish populations in Farmington Bay. Ammonia criteria are more stringent when early life stages of fish may be present. Early life stages of fish are not considered for this permit cycle because of the lack of specific data regarding the potential fish species present in the immediate receiving waters. The 2013 USEPA ammonia criteria based on a presumed absence of unionid mussels and no salmonids was applied.

Consistent with Utah Wasteload Allocation procedures, acute limits are based on the maximum observed pH and temperature of the effluent [note: ammonia limits are very sensitive to pH and to a lesser extent temperature]. Chronic limits are based on the average pH and temperature of the effluent. Effluent pH data are available but effluent temperature data are not. The maximum

¹ <https://documents.deq.utah.gov/water-quality/standards-technical-services/gsl-website-docs/alu-standards-development/DWQ-2019-000534.pdf>

and average effluent ammonia concentrations reported in the permit application are 6.1 and 3.1 mg/L, respectively. These concentrations are unlikely to trigger reasonable potential at the expected effluent temperatures. Effluent temperature will be added as a monitoring requirement for this permit cycle to confirm this conclusion.

Copper

The projected maximum effluent concentration is 0.042 mg/L and the copper criterion at 400 mg/L CaCO₃ hardness is 0.030 mg/L. The hardness adjustment to the criterion is limited to 400 mg/L which the effluent can exceed and the receiving waters do exceed. This suggests that the Class 3D criterion may be unnecessarily stringent. The EPA copper biotic ligand model provides more refined estimates of a protective copper criterion. For this permit cycle, monthly monitoring for parameters to support application of the copper biotic ligand model were added. The new parameter is dissolved organic carbon that is added to monitoring requirements for copper, pH and temperature monitoring. These parameters must be measured on the same day. The copper criterion can be further refined if the CDSO chooses to also simultaneously measure alkalinity, major cations (calcium, magnesium, sodium, and potassium), and major anions (sulfate, chloride). Default values will be used for these optional parameters if site-specific data are unavailable.

A Copper Criterion Study (Study) shall be conducted by CDSO to gather data to support application of the copper biotic ligand model. The Study is requirements are outlined in Part I.C.3 of this permit.

Total Residual Chlorine

The average effluent concentrations of total chlorine were 1.4 mg/L. The 4-day criterion is 0.011 mg/L. The difference between these values is potentially overstated. Total residual chlorine is challenging to measure accurately and the available analytical methods have insufficient sensitivity. A monitoring requirement for total residual chlorine will be added as a monitoring requirement for this permit cycle with the goal of determining the sensitivity of the existing methods and supporting future reasonable potential analyses.

Selenium

The reasonable potential analyses projected a maximum effluent concentration of 0.0047 mg/L and the 4-day average criterion is 0.0046 mg/L. Although the maximum potential effluent concentration exceeds the criterion, selenium is concluded to not have reasonable potential because the presence of fish in the immediate receiving waters is uncertain. The criterion is based on primarily on protecting fish and other forms of aquatic life are much less sensitive. Waterfowl and shorebirds are likely present in the immediate receiving waters but the data regarding selenium concentrations in bird eggs from Farmington Bay support that adverse effects are unlikely (see Ackerman et al. 2015 <https://pubs.er.usgs.gov/publication/ofr20151020>).

Whole Effluent Toxicity (WET) Testing

The requirements for WET testing are unchanged from the last permit cycle with acute testing quarterly and chronic testing as an indicator. Both tests are conducted with 100 percent effluent. The CDSO passed all of the acute WET testing during the last permit cycle. One chronic WET

test was repeated after the first one did not meet the IC₂₅. The dose-response observed suggests the results of the first test were anomalous and the toxicity was not verified for the follow-up test and a pattern of toxicity was not demonstrated. The WET permit language was updated consistent with Utah’s 2018 WET Implementation Guidance.

The permit limitations are:

Table 1					
Parameter	Effluent Limitations^a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
BOD ₅ , mg/L	25	35	--	--	--
BOD ₅ Min. % Removal	80	--	--	--	--
TSS, mg/L	25	35	--	--	--
TSS Min. % Removal	80	--	--	--	--
<i>E. coli</i> , No./100mL	126	157	--	--	--
pH, Standard Units	--	--	--	6.5	9
Oil & Grease, mg/L	--	--	--	--	10.0
Total Phosphorus, mg/L ^h	--	--	1	--	--
WET, Acute Biomonitoring	--	--	--	--	100% effluent

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the same as in the previous permit with the addition of Temperature, Ammonia, TRC and Copper monthly monitoring. The permit will require reports to be submitted monthly, quarterly and annually, as applicable, on NetDMR due 28 days after the end of the monitoring period. Lab sheets for biomonitoring, metals and toxic organics must be attached to the applicable monitoring report.

Table 2				
Self-Monitoring and Reporting Requirements ^{a, b}				
Parameter		Frequency	Sample Type	Units
Total Flow ^{c, d}				
	Effluent	Continuous	Recorder	MGD
BOD ₅				
	Influent ^e	3 x weekly	Composite	mg/L
	Effluent	3 x weekly	Composite	mg/L
TSS				
	Influent ^e	3 x weekly	Composite	mg/L
	Effluent	3 x weekly	Composite	mg/L
<i>E. coli</i>				
	Effluent	3 x weekly	Grab	No./100mL
Total Ammonia (as N)				
	Effluent	3 x weekly	Grab	mg/L
pH				
	Effluent	3 x weekly	Grab	SU
Temperature, mg/L				
	Effluent	3 x weekly	Recorder	Fahrenheit
Oil & Grease ^{f, g}				
	Effluent	When Sheen Observed	Grab	mg/L
TRC, mg/L				
	Effluent	3 x weekly	Grab	mg/L
Orthophosphate (as P) ^h				
	Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P)				
	Influent ^h	Monthly	Grab	mg/L
	Effluent ^h	Monthly	Grab	mg/L
Total Phosphorus (as P)				
	Effluent	Monthly	Calculated	lbs
Total Kjeldahl Nitrogen (TKN (as N))				
	Influent ^h	Monthly	Composite	mg/L
	Effluent ^h	Monthly	Composite	mg/L
Nitrate, NO ₃				
	Effluent	Monthly	Composite	mg/L
Nitrite, NO ₂				
	Effluent	Monthly	Composite	mg/L

Table 2 continued on page 7

Table 2 continued			
Self-Monitoring and Reporting Requirements^{a, b}			
Parameter	Frequency	Sample Type	Units
WET – Biomonitoring ^{j, k}			
<i>Ceriodaphnia</i> - Acute	1 st & 3 rd Quarter	Composite	Pass/Fail
Fathead Minnows - Acute	2 nd & 4 th Quarter	Composite	Pass/Fail
<i>Ceriodaphnia</i> – Chronic I	1 st & 3 rd Quarter	Composite	Pass/Fail
Fathead Minnows – Chronic ^l	2 nd & 4 th Quarter	Composite	Pass/Fail
Metals			
Influent ^{m, n, o}	Quarterly	Composite	mg/L
Effluent ^{m, n, o}	Quarterly	Composite	mg/L
Organic Toxics			
Effluent	Annually	Grab	mg/L

Table References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- d. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- e. In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.
- f. There shall be no visible sheen or floating solids or visible foam in other than trace amounts.
- g. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under “NODI” in NetDMR.
- h. These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule.
- i. The permittee shall calculate phosphorus load in pounds each month and show a cumulative total of the yearly pounds for each monthly report until December. January 1, of each year, the permittee will start at zero so that the phosphorus load is totalized from January to December on the monthly reports each year. Phosphorus load shall be calculated using the total volume from a monthly flow and the average of the monthly phosphorus concentrations.
- j. The acute and chronic *Ceriodaphnia* will be tested during the 1st and 3rd, and the acute and chronic fathead minnows will be tested during the 2nd and 4th quarters.
- k. TUC is calculated by dividing the receiving water effluent concentration determined in accordance with R317-2-5 by the chronic test IC₂₅. The TUC is an indicator and an exceedance is not used for determining compliance. Report IC Value.
- l. Chronic WET tests will be considered an indicator for Class 5 waters of the Great Salt Lake because of uncertainties regarding the representativeness of the standard test species for the Great Salt Lake.
- m. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- n. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if CDSO decides to sample more frequently for these parameters, the additional data will be welcome.

0. Metals

- Arsenic
- Cadmium
- Total Chromium
- Copper

- Cyanide
- Lead
- Mercury
- Nickel

- Selenium
- Silver
- Zinc

Table References End

BIOSOLIDS

For clarification purposes, sewage sludge is considered solids, until treatment or testing shows that the solids are safe, and meet beneficial use standards. After the solids are tested or treated, the solids are then known as biosolids. Class A biosolids, may be used for high public contact sites, such as home lawns and gardens, parks, or playing fields, etc. Class B biosolids may be used for low public contact sites, such as farms, rangeland, or reclamation sites, etc.

DESCRIPTION OF TREATMENT AND DISPOSAL

The CDSO has two wastewater process streams that generate biosolids at the plant. One is the oxidation ditches train which produces the aerobic biosolids, and the other is the trickling filters train that produces anaerobic biosolids. The aerobic solids are further processed to meet the requirement for beneficial use. The anaerobic biosolids qualify as Class B biosolids off of the belt presses. Separate descriptions of treatment and beneficial use methods are described below.

Beneficial Use - Anaerobic Biosolids

Waste activated sludge from the trickling filter process is used in the anaerobic biosolids process. The solids are stabilized in primary anaerobic digester with a mean cell residence time that fluctuates from 33 to 47 days and is operated at a temperature of at least 35°C (95°F). The solids then go to a secondary digester with a Duo-Sphere Cover system. After stabilization, the biosolids are wasted to belt filter presses and de-watered to between 5-10% solids. The biosolids are then land applied on property around the treatment plant. The gas collected in the Duo-Sphere system is currently flared off.

Beneficial Use - Aerobic Biosolids

The mean cell residence time for the solids in the oxidation ditches fluctuates from 26-28 days. After the biosolids are stabilized in the oxidation ditches, the biosolids are dewatered to about 10-15% percent solids, then mixed with wood chips and green waste and composted using the windrow method or the aerated static pile method composting to meet Class A standards, then sold or given away to the public.

Inspection Results

The last inspection conducted at the CDSO of the compost operation and land application site was December 9, 2013. The inspections showed that the CDSO was in compliance with all aspects of the biosolids management program.

SUBSTANTIVE PERMIT CHANGES

CDSO has started hauling biosolids to a landfill for disposal during the winter to reduce odor issues, and evaluating their process in advance of a highway project that will take away some of the historic land application area and bring the public closer to the facility.

SELF-MONITORING REQUIREMENTS

Under *40 CFR 503.16(a)(1)*, the self-monitoring requirements are based upon the amount of biosolids disposed per year and shall be monitored according to the chart below.

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 320 to < 1650	> 290 to < 1,500	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

Since 2010 CDSO produced on average 700 DMT of biosolids annually for land application or composting, and 2,000 DMT of compost from biosolids for distribution to the public; therefore they need to sample at least six times a year.

Landfill Monitoring

Under 40 CFR 258, the landfill monitoring requirements include a paint filter test. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (40 CFR 258.28(c)(1)).

BIOSOLIDS LIMITATIONS

Heavy Metals

Class A Biosolids for Home Lawn and Garden Use

The intent of the heavy metals regulations of Table 3, 40 CFR 503.13 is to ensure the heavy metals do not build up in the soil in home lawn and gardens to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see Part III. C. of the permit) to made available to all people who are receiving and land applying Class A biosolids to their lawns and gardens. If the instructions of the information sheet are followed to any reasonable degree, the Class A biosolids will be able to be land applied year after year, to the same lawns and garden plots without any deleterious effects to the environment. The information sheet must be provided to the public, because the permittee is not required, nor able to track the quantity of Class A biosolids that are land applied to home lawns and gardens.

Class A Requirements With Regards to Heavy Metals

If the biosolids are to be applied to a lawn or home garden, the biosolids shall not exceed the maximum heavy metals in Table 1 and the monthly average pollutant concentrations in Table 3 (see Table 1 and Table 3 below). If the biosolids do not meet these requirements, the biosolids cannot be sold or given away for applications to home lawns and gardens.

Class B Requirements for Agriculture and Reclamation Sites

The intent of the heavy metals regulations of Tables 1, 2 and 3, of 40 CFR 503.13 is to ensure that heavy metals do not build up in the soil at farms, forest land, and land reclamation sites to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see Part III. C. of the permit) to be handed out to all people who are receiving and land applying Class B biosolids to farms, ranches, and land reclamation sites (if biosolids are only applied to land owned by the permittee, the information sheet requirements are waived). If the biosolids are land applied according to the regulations of 40 CFR 503.13, to any reasonable degree, the Class B biosolids will be able to be land applied year after year, to the same farms, ranches, and land reclamation sites without any deleterious effects to the environment.

Class B Requirements With Regards to Heavy Metals

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site it must meet at all times:

The maximum heavy metals listed in 40 CFR Part 503.13(b) Table 1 and the heavy metals loading rates in 40 CFR Part 503.13(b) Table 2; or

The maximum heavy metals in 40 CFR Part 503.13(b) Table 1 and the monthly heavy metals concentrations in 40 CFR Part 503.13(b) Table 3.

Tables 1, 2, and 3 of Heavy Metal Limitations

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits ^{2, 3} (mg/kg)	CPLR ⁴ (mg/ha)	Pollutant Conc. Limits ^{1, 2} (mg/kg)	APLR ⁵ (mg/ha-yr)
Total Arsenic	75	41	41	2.0
Total Cadmium	85	39	39	1.9
Total Copper	4300	1500	1500	75
Total Lead	840	300	300	15
Total Mercury	57	17	17	0.85
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5.0
Total Zinc	7500	2800	2800	140

Any violation of these limitations shall be reported in accordance with the requirements of Part III.F.1. of the permit .If the biosolids do not meet these requirements they cannot be land applied.

Pathogens

The Pathogen Control class listed in the table below must be met;

Pathogen Control Class	
503.32 (a)(1) - (5), (7),-(8), Class A	503.32 (b)(1) - (5), Class B
B Salmonella species –less than three (3) MPN ⁶ per four (4) grams total solids (DWB) ⁷ or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – less than 2,000,000 MPN or CFU ⁸ per gram total solids (DWB).
503.32 (a)(6) Class A—Alternative 4	

² The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application

³ These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.

⁴ CPLR -- Cumulative Pollutant Loading Rate

⁵ APLR – Annual Pollutant Loading Rate

⁶ MPN – Most Probable Number

⁷ DWB – Dry Weight Basis.

⁸ CFU – Colony Forming Units

Pathogen Control Class	
B <i>Salmonella</i> species –less than three (3) MPN per four (4) grams total solids (DWB) or less than 1,000 MPN Fecal Coliforms per gram total solids (DWB),	
And - Enteric viruses –less than one (1) plaque forming unit per four (4) grams total solids (DWB)	
And - Viable helminth ova –less than one (1) per four (4) grams total solids (DWB)	

Class A Requirements for Home Lawn and Garden Use

If biosolids are land applied to home lawns and gardens, the biosolids need to be treated by a specific process to further reduce pathogens (PFRP), and meet a microbiological limit of less than less than 3 most probable number (MPN) of *Salmonella* per 4 grams of total solids (or less than 1,000 most probable number (MPN/g) of fecal coliform per gram of total solids) to be considered Class A biosolids. The CDSO has chosen to achieve PFRP through a method of Composting.

1. Windrow Method- Using the windrow method of composting, the temperature needs to be maintained at 55°C (131°F) or higher for fifteen days, with a minimum of five turnings during those fifteen days,
2. Static Aerated Pile Method - Composting using the static aerated pile method, the temperature of the biosolids is maintained at 55°C (131°F) or higher for at least 3 days.

Both of these composting methods are found under (40 CFR 503.32(a)(7)(ii)), (Appendix B, B.1.).

The practice of sale or giveaway to the public is an acceptable use of biosolids of this quality as long as the biosolids continue to meet Class A standards with respect to pathogens. If the biosolids do not meet Class A pathogen standards the biosolids cannot be sold or given away to the public, and the permittee will need find another method of beneficial use or disposal.

Pathogens Class B

If biosolids are to be land applied for agriculture or land reclamation the solids need to be treated by a specific process to significantly reduce pathogens (PSRP), and meet a microbiological limit with the geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 most probable number per gram of total solids (dry weight basis) or 2,000,000 colony forming units per gram of total solids (dry weight basis) to be considered Class B biosolids. The CDSO has chosen to achieve PSRP through the following approved methods:

1. Anaerobic Digestion - Under 40 CFR 503.32 (b)(3) The PSRP may be accomplished through anaerobic digesters that have a minimum retention time of 15 days at 95° F (35° C) or 60 days at 68° F (20°C).
2. Composting - Under 40 CFR 503.32 (b)(3) the PSRP may be accomplished through composting. To achieve this, the temperature must be above 40° C (104° F) or higher, and remain at 40° C or higher for a minimum of five days. For four hours, during the five days, the temperature needs to exceed 55° C (113° F).

Vector Attraction Reduction (VAR)

If the biosolids are land applied CDSO will be required to meet VAR through the use of a method of listed under *40 CFR 503.33*. The CDSO intends to meet the vector attraction reduction requirements through one of the methods listed below.

1. 38% VSS Reduction - Under *40 CFR 503.33(b)(1)*, the solids need to be treated through anaerobic digestion for at least 15 days at a temperature of at least 35° C (95° F) with a 38% reduction of volatile solids.
2. Composting - Under *40 CFR 503.33(b)(5)* the solids need treated through composting with a temperature of 40° C (104° F) or higher for at least 14 days with an average temperature of over 45° C (113° F).

If the biosolids do not meet a method of VAR, the biosolids cannot be land applied.

If the permittee intends to use another one of the listed alternatives in *40 CFR 503.33*, the Director must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice

Landfill Monitoring

Under *40 CFR 258*, the landfill monitoring requirements include a paint filter test to determine if the biosolids exhibit free liquid. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (*40 CFR 258.28(c)(1)*).

Record Keeping

The record keeping requirements from *40 CFR 503.17* are included under *Part III.G.* of the permit. The amount of time the records must be maintained are dependent on the quality of the biosolids in regards to the metals concentrations. If the biosolids continue to meet the metals limits of *Table 3* of *40 CFR 503.13*, and are sold or given away the records must be retained for a minimum of five years. If the biosolids are disposed in a landfill the records must retained for a minimum of five years.

Reporting

The CDSO must report annually as required in *40 CFR 503.18*. This report is to include the results of all monitoring performed in accordance with *Part III.B* of the permit, information on management practices, biosolids treatment, and certifications. This report is due no later than February 19 of each year. Each report is for the previous calendar year.

MONITORING DATA

METALS MONITORING DATA

The CDSO has sampled at least six times a year since in 2010. A summary of the monitoring data is below.

CDSO Land Application Metals Monitoring Data 2010 through 2018.

CDS Land Application Metals Monitoring Data (2010 – 2018)				
Parameter	Table 4, mg/kg Ceiling Concentration	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	75	41	18.7	36
Cadmium	85	39	1	2
Copper	4300	1,500	1077	1430
Lead	840	300	14.5	35
Mercury	57	17	1.5	4
Molybdenum	75	75	13	25
Nickel	420	400	11.9	19
Selenium	100	36	10.6	52
Zinc	7500	2,800	786	1080

The biosolids met *Table 3* of *40 CFR 503.13*, limits for metals; therefore the biosolids met the requirements to be considered Exceptional Quality in regards to metals for land application.

CDS Compost Metals Monitoring Data 2010 through 2018.

CDS Compost Metals Monitoring Data (2010 – 2018)				
Parameter	Table 4, mg/kg Ceiling Concentration	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	75	41	9.3	27.3
Cadmium	85	39	0.6	1.4
Copper	4300	1,500	342	533
Lead	840	300	8.8	25.4
Mercury	57	17	0.5	1.1
Molybdenum	75	75	3.5	6.7
Nickel	420	400	6.3	10.9
Selenium	100	36	5.7	15.8
Zinc	7500	2,800	237	379

The biosolids met *Table 3* of *40 CFR 503.13*, limits for metals; therefore the biosolids met the requirements to be considered Exceptional Quality in regards to metals for land application.

PATHOGEN MONITORING DATA

The CDS has been required to monitor the composted biosolids for pathogens at least six times a year. The CDS had the choice to sample for *fecal coliform* or *salmonella*, and the CDS chose *salmonella*. Each monitoring episode needs to consist of seven samples, for a total 42 samples. All compost sold or given away since 2010 met the Class A pathogen standards for compost. A summary of the monitoring data is below.

CDS *Salmonella* Monitoring Data 2010 to 2018

<i>Salmonella</i> Monitoring Results, 2010 – 2018 Summary	
Average, MPN/gram	Maximum, MPN/gram
1.63	3.9

STORM WATER

STORMWATER REQUIREMENTS

Storm water provisions are included in this combined UPDES permit.

The storm water requirements are based on the UPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity, General Permit No. UTR000000 (MSGP). All sections of the MSGP that pertain to discharges from wastewater treatment plants have been included and sections which are redundant or do not pertain have been deleted.

The permit requires the preparation and implementation of a storm water pollution prevention plan for all areas within the confines of the plant. Elements of this plan are required to include:

1. The development of a pollution prevention team,
2. Development of drainage maps and materials stockpiles,
3. An inventory of exposed materials,
4. Spill reporting and response procedures,
5. A preventative maintenance program,
6. Employee training,
7. Certification that storm water discharges are not mixed with non-storm water discharges,
8. Compliance site evaluations and potential pollutant source identification, and
9. Visual examinations of storm water discharges.

PRETREATMENT REQUIREMENTS

The pretreatment requirements, regarding administering an approved pretreatment program, remain the same as in the current permit. Any substantial and/or non-substantial changes to the program as defined in *40 CFR 403.18*, must be submitted for approval to the Division of Water Quality. Authority to require a pretreatment program is provided for in *19-5-108 UCA, 1953 ann.* and *UAC R317-8-8*.

The sampling of metals will be conducted quarterly and the sampling of organic toxics yearly, see Part II of the UPDES Permit. This is consistent with the UPDES Pretreatment Guidance for Sampling of POTWs, which is based on the design flow of the wastewater treatment plant. Additional requirements have been added to the permit to ensure that if the allowable headworks loading is above the value calculated for the local limit development that additional monitoring and notification must occur.

The permittee will be required to perform an annual evaluation of the need to revise or develop technically based local limits to implement the general and specific prohibitions of *40 CFR, Part 403.5(a)* and *Part 403.5(b)*. This evaluation may indicate that present local limits are sufficiently protective, or that they must be revised. The initial evaluation is due twelve months after the effective date of the permit. As part of this evaluation, the permit requires influent and effluent monitoring for metals and organic toxics as stated in the permit the most sensitive method should be used for analyzing pollutants of concern as determined by the local limit development. The permittee should utilize EPA's Local Limits Development Guidance to justify the re-evaluation of the local limits. Information is provided in Chapter 7 of the EPA Local Limits Development Guidance 2004 to assist with the development of revising the local limits.

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the Utah Pollutant Discharge Elimination System Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring), dated February 2018. Authority to require effluent biomonitoring is provided in Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317 -2-7.2.

Since the permittee is a major municipal discharger, the renewal permit will again require whole effluent toxicity (WET) testing. The requirements for WET testing are unchanged from the last permit cycle with acute testing quarterly and chronic testing as an indicator. Both tests are conducted with 100 percent effluent. The CDSO passed all of the acute WET testing during the last permit cycle. One chronic WET test was repeated after the first one did not meet the IC₂₅. The dose-response observed suggests the results of the first test were anomalous and the toxicity was not verified for the follow-up test and a pattern of toxicity was not demonstrated. The WET permit language was updated consistent with Utah's 2018 WET Implementation Guidance.

The permit will also contain the standard requirements for accelerated testing upon failure of a WET test and a Preliminary Toxicity Investigation (PTI) and Toxicity Reduction Evaluation (TRE) as necessary.

PERMIT DURATION

It is recommended that this permit be effective for a duration of five (5) years.

Drafted by
Sarah Leavitt Ward, Discharge
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Lisa Stevens, Storm Water
Sarah Leavitt Ward, Reasonable Potential Analysis
Nick von Stackelberg/Dave Wham, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: March 17, 2020
Ended: April 16, 2020

Comments will be received at: 195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870

The Public Noticed of the draft permit was published in the Salt Lake Tribune.

ADDENDUM TO FSSOB

During finalization of the Permit certain dates, spelling edits and minor language corrections were completed. Due to the nature of these changes they were not considered Major and the permit is not required to be re Public Noticed.

Responsiveness Summary

No comments were received.

DWQ-2019-019715

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ATTACHMENT 1

Industrial Waste Survey

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Industrial Pretreatment Wastewater Survey



Do you periodically experience any of the following treatment works problems:

- foam, floaties or unusual colors
- plugged collection lines caused by grease, sand, flour, etc.
- discharging excessive suspended solids, even in the winter
- smells unusually bad
- waste treatment facility doesn't seem to be treating the waste right

Perhaps the solution to a problem like one of these may lie in investigating the types and amounts of wastewater entering the sewer system from industrial users.

An industrial user (IU) is defined as a non-domestic user discharging to the waste treatment facility which meets any of the following criteria:

1. **has a lot of process wastewater (5% of the flow at the waste treatment facility or more than 25,000 gallons per work day.)**

Examples: Food processor, dairy, slaughterhouse, industrial laundry.

2. **is subject to Federal Categorical Pretreatment Standards;**

Examples: metal plating, cleaning or coating of metals, blueing of metals, aluminum extruding, circuit board manufacturing, tanning animal skins, pesticide formulating or packaging, and pharmaceutical manufacturing or packaging,

3. **is a concern to the POTW.**

Examples: septage hauler, restaurant and food service, car wash, hospital, photo lab, carpet cleaner, commercial laundry.

All users of the water treatment facility are **prohibited** from making the following types of discharges:

1. A discharge which creates a fire or explosion hazard in the collection system.
2. A discharge which creates toxic gases, vapor or fumes in the collection system.
3. A discharge of solids or thick liquids which creates flow obstructions in the collection system.
4. An acidic discharge (low pH) which causes corrosive damage to the collection system.
5. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause problems in the collection system or at the waste treatment facility.
6. Waste haulers are prohibited from discharging without permission. (No midnight dumping!)

When the solution to a sewer system problem may be found by investigating the types and amounts of wastewater entering the sewer system discharged from IUs, it's appropriate to conduct an Industrial Waste Survey.

An Industrial Waste Survey consists of:

Step 1: Identify Industrial Users

Make a list of all the commercial and industrial sewer connections.

Sources for the list:

business license, building permits, water and wastewater billing, Chamber of Commerce, newspaper, telephone book, yellow pages.

Split the list into two groups:

domestic wastewater only--no further information needed
everyone else (IUs)

Step 2: Preliminary Inspection

Go visit each IU identified on the "everybody else" list.

Fill out the **Preliminary Inspection Form** during the site visit.

Step 3: Informing the State

Please fax or send a copy of the Preliminary inspection form (both sides) to:

Jennifer Robinson

Division of Water Quality
288 North 1460 West
PO Box 144870
Salt Lake City, UT 84114-4870

Phone: (801) 536-4383
Fax: (801) 536-4301
E-mail: jenrobinson@utah.gov

PRELIMINARY INSPECTION FORM

INSPECTION DATE ___ / ___ /

Name of Business _____ **Person Contacted** _____
Address _____ **Phone Number** _____

Description of Business _____

Principal product or service: _____

Raw Materials used: _____

Production process is: Batch Continuous Both

Is production subject to seasonal variation? yes no

If yes, briefly describe seasonal production cycle.

This facility generates the following types of wastes (check all that apply):

- | | |
|--|--|
| 1. <input type="checkbox"/> Domestic wastes | (Restrooms, employee showers, etc.) |
| 2. <input type="checkbox"/> Cooling water, non-contact | 3. <input type="checkbox"/> Boiler/Tower blowdown |
| 4. <input type="checkbox"/> Cooling water, contact | 5. <input type="checkbox"/> Process |
| 6. <input type="checkbox"/> Equipment/Facility wash-down | 7. <input type="checkbox"/> Air Pollution Control Unit |
| 8. <input type="checkbox"/> Storm water runoff to sewer | 9. <input type="checkbox"/> Other describe |

Wastes are discharged to (check all that apply):

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Sanitary sewer | <input type="checkbox"/> Storm sewer |
| <input type="checkbox"/> Surface water | <input type="checkbox"/> Ground water |
| <input type="checkbox"/> Waste haulers | <input type="checkbox"/> Evaporation |
| <input type="checkbox"/> Other (describe) | |

Name of waste hauler(s), if used

Is a grease trap installed? Yes No

Is it operational? Yes No

Does the business discharge a lot of process wastewater?

- | | | |
|---|-----|----|
| • More than 5% of the flow to the waste treatment facility? | Yes | No |
| • More than 25,000 gallons per work day? | Yes | No |

Does the business do any of the following:

- | | |
|---|--|
| <input type="checkbox"/> Adhesives | <input type="checkbox"/> Car Wash |
| <input type="checkbox"/> Aluminum Forming | <input type="checkbox"/> Carpet Cleaner |
| <input type="checkbox"/> Battery Manufacturing | <input type="checkbox"/> Dairy |
| <input type="checkbox"/> Copper Forming | <input type="checkbox"/> Food Processor |
| <input type="checkbox"/> Electric & Electronic Components | <input type="checkbox"/> Hospital |
| <input type="checkbox"/> Explosives Manufacturing | <input type="checkbox"/> Laundries |
| <input type="checkbox"/> Foundries | <input type="checkbox"/> Photo Lab |
| <input type="checkbox"/> Inorganic Chemicals Mfg. or Packaging | <input type="checkbox"/> Restaurant & Food Service |
| <input type="checkbox"/> Industrial Porcelain Ceramic Manufacturing | <input type="checkbox"/> Septage Hauler |
| <input type="checkbox"/> Iron & Steel | <input type="checkbox"/> Slaughter House |
| <input type="checkbox"/> Metal Finishing, Coating or Cleaning | |
| <input type="checkbox"/> Mining | |
| <input type="checkbox"/> Nonferrous Metals Manufacturing | |
| <input type="checkbox"/> Organic Chemicals Manufacturing or Packaging | |
| <input type="checkbox"/> Paint & Ink Manufacturing | |
| <input type="checkbox"/> Pesticides Formulating or Packaging | |
| <input type="checkbox"/> Petroleum Refining | |
| <input type="checkbox"/> Pharmaceuticals Manufacturing or Packaging | |
| <input type="checkbox"/> Plastics Manufacturing | |
| <input type="checkbox"/> Rubber Manufacturing | |
| <input type="checkbox"/> Soaps & Detergents Manufacturing | |
| <input type="checkbox"/> Steam Electric Generation | |
| <input type="checkbox"/> Tanning Animal Skins | |
| <input type="checkbox"/> Textile Mills | |

Are any process changes or expansions planned during the next three years? Yes No
If yes, attach a separate sheet to this form describing the nature of planned changes or expansions.

Inspector

Waste Treatment Facility

Please send a copy of the preliminary inspection form (both sides) to:

**Jennifer Robinson
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870**

**Phone: (801) 536-4383
Fax: (801) 536-4301
E-Mail: jenrobinson@utah.gov**

	Industrial User	Jurisdiction	SIC Codes	Categorical Standard Number	Total Average Process Flow (gpd)	Total Average Facility Flow (gpd)	Facility Description
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

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ATTACHMENT 2

Wasteload Analysis

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State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

MEMORANDUM

TO: Sarah Leavitt, UPDES Permit Writer

FROM: Chris Bittner, Standards Coordinator

DATE: November 26, 2019

SUBJECT: Antidegradation Reviews for the Central Davis Sewer District (CDS),
UDPES Permit UT0020974

RECEIVING WATERS AND STREAM CLASSIFICATION

At current and anticipated Lake elevations for the duration of this permit, the discharge is to the Transitional Waters of Great Salt Lake and then to Farmington Bay, Great Salt Lake. According to the *Utah Administrative Code (UAC) R317-2-13*, the designated uses are:

- Class 5E Transitional Waters of Great Salt Lake. Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain
- Class 5D Farmington Bay of the Great Salt Lake. Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD₅), E. coli, pH and percent removal for BOD₅ and TSS are based on current Utah Secondary Treatment Standards, *UAC R317-1-3.2*. The Division of Water Quality has determined that this discharge does not have reasonable potential to cause or contribute to a violation of water quality standards. An Antidegradation Level II review is not required because the permit is being renewed with no changes and water quality will not be further lowered by the proposed activity, *UAC R317-2-3.5.b.1.(b)*.

No numeric criteria are available for the recreation or aquatic life uses in the Transitional Waters or Farmington Bay. The Level I anti-degradation review, protection of existing uses, was conducted in accordance with the *Interim Methods for Evaluating Use Support for Great Salt Lake Utah*

Pollution Discharge Elimination System (UPDES) Permits (v. 1.0 January 4, 2016) (*Interim Methods*). No existing uses are identified that require more stringent protection than the designated uses.

As described in the *Interim Methods*, effluent pollutant concentrations were screened against Class 3D aquatic life numeric criteria to determine reasonable potential and the protection of the uses in accordance with the Narrative Standards. No dilution was assumed for the discharge to the Transitional Waters.

The source of the effluent data and parameters was the permit application. A reasonable potential analysis was conducted assuming no dilution. No pollutants demonstrated reasonable potential to cause or contribute to an exceedance of a water quality standard. Pollutants that required further evaluation are discussed in the following section.

Updates from the 2014 permit.

Ammonia.

In 2013, the USEPA published updated water quality criteria for ammonia. The applicability of these criteria for Farmington Bay were evaluated. The evaluation concluded that these are appropriate screening values for determining effluent limits for the discharge. Ammonia is generally toxic to aquatic life but species vary widely in their sensitivity. Ammonia is also a nutrient that is taken up rapidly by plants and bacteria when present at sub-toxic concentrations. Farmington Bay includes freshwater taxa such as daphnids and mayflies¹. Fish can be sensitive to ammonia and fish have been observed in Farmington Bay and surrounding wetlands. Fish are observed in similar freshwater habitats at Great Salt Lake and fish presence in nearby waters such as waterfowl management areas and observations of fish-eating birds support that fish may be considered residents for the comparison criteria. Studies are ongoing to better characterize the distribution of fish populations in Farmington Bay. Ammonia criteria are more stringent when early life stages of fish may be present. Early life stages of fish are not considered for this permit cycle because of the lack of specific data regarding the potential fish species present in the immediate receiving waters. The 2013 USEPA ammonia criteria based on a presumed absence of unionid mussels and no salmonids was applied.

Consistent with Utah Wasteload Allocation procedures, acute limits are based on the maximum observed pH and temperature of the effluent [note: ammonia limits are very sensitive to pH and to a lesser extent temperature]. Chronic limits are based on the average pH and temperature of the effluent. Effluent pH data are available but effluent temperature data are not. The maximum and average effluent ammonia concentrations reported in the permit application are 6.1 and 3.1 mg/L, respectively. These concentrations are unlikely to trigger reasonable at the expected effluent temperatures. Effluent temperature will be added as a monitoring requirement for this permit cycle to confirm this conclusion.

Copper

The projected maximum effluent concentration is 0.042 mg/L and the copper criterion at 400 mg/L CaCO₃ hardness is 0.030 mg/L. The hardness adjustment to the criterion is limited to 400

¹ <https://documents.deq.utah.gov/water-quality/standards-technical-services/gsl-website-docs/alu-standards-development/DWQ-2019-000534.pdf>

mg/L which the effluent can exceed and the receiving waters do exceed. This suggests that the Class 3D criterion may be unnecessarily stringent. The EPA copper biotic ligand model provides more refined estimates of a protective copper criterion. For this permit cycle, monthly monitoring for parameters to support application of the copper biotic ligand model were added. The new parameter is dissolved organic carbon that is added to monitoring requirements for copper, pH and temperature monitoring. These parameters must be measured on the same day. The copper criterion can be further refined if the CDSO chooses to also simultaneously measure alkalinity, major cations (calcium, magnesium, sodium, and potassium), and major anions (sulfate, chloride). Default values will be used for these optional parameters if site-specific data are unavailable.

Total Residual Chlorine

The average effluent concentrations of total chlorine were 1.4 mg/L. The 4-day criterion is 0.011 mg/L. The difference between these values is potentially overstated. Total residual chlorine is challenging to measure accurately and the available analytical methods have insufficient sensitivity. A monitoring requirement for total residual chlorine will be added as a monitoring requirement for this permit cycle with the goal of determining the sensitivity of the existing methods and supporting future reasonable potential analyses.

Selenium

The reasonable potential analyses projected a maximum effluent concentration of 0.0047 mg/L and the 4-day average criterion is 0.0046 mg/L. Although the maximum potential effluent concentration exceeds the criterion, selenium is concluded to not have reasonable potential because the presence of fish in the immediate receiving waters is uncertain. The criterion is based on primarily on protecting fish and other forms of aquatic life are much less sensitive. Waterfowl and shorebirds are likely present in the immediate receiving waters but the data regarding selenium concentrations in bird eggs from Farmington Bay support that adverse effects are unlikely (see Ackerman et al. 2015 <https://pubs.er.usgs.gov/publication/ofr20151020>).

Whole Effluent Toxicity (WET) Testing

The requirements for WET testing are unchanged from the last permit cycle with acute testing quarterly and chronic testing as an indicator. Both tests are conducted with 100 percent effluent. The CDSO passed all of the acute WET testing during the last permit cycle. One chronic WET test was repeated after the first one did not meet the IC₂₅. The dose-response observed suggests the results of the first test were anomalous and the toxicity was not verified for the follow-up test and a pattern of toxicity was not demonstrated. The WET permit language was updated consistent with Utah's 2018 WET Implementation Guidance.

ATTACHMENT 3

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

Water Quality has worked to improve our reasonable potential analysis (RP) for the inclusion of limits for parameters in the permit by using an EPA provided model. As a result of the model, more parameters may be included in the renewal permit. A Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at water Quality. There are four outcomes for the RP Analysis⁹. They are;

- Outcome A: A new effluent limitation will be placed in the permit.
- Outcome B: No new effluent limitation. Routine monitoring requirements will be placed or increased from what they are in the permit,
- Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit,
- Outcome D: No limitation or routine monitoring requirements are in the permit.

Initial screening for metals values that were submitted through the renewal application and discharge monitoring reports. A copy of the initial screening is included in the “Effluent Metals and RP Screening Results” table in this attachment.

A Summary of the RP Model inputs and outputs are included in the tables below.

Initial screening for metals values that were submitted through the discharge monitoring reports showed that a closer look at some of the metals is not needed.

A Summary of the RP Model inputs and outputs are included in the table below.

The Metals Initial Screening Table and RP Outputs Table are included in this attachment.

⁹ See Reasonable Potential Analysis Guidance for definitions of terms

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Arsenic				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0.0072	mg/L	
Reporting Limit	0.0005	Coefficient of Variation (CV)	0.1566		
Significant Figures	4	RP Multiplier	1.102		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.007933	mg/L	
Acute Criterion	0.01	mg/L	RP for Acute?		NO
Chronic Criterion	0.15	mg/L	RP for Chronic?		NO
Human Health Criterion	0	mg/L	RP for Human Health?		N/A
Effluent Data					
#		#		#	
1	0.0072	7	0.0054	13	0.006
2	0.0064	8	0.0071	14	0.0052
3	0.0049	9	0.005	15	0.0054
4	0.0061	10	0.0048	16	0.006
5	0.005	11	0.0043	17	0.0049
6	0.0054	12	0.004	18	0.0055

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Cadmium				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0	mg/L	
Reporting Limit	0.0002	Coefficient of Variation (CV)	0		
Significant Figures	4	RP Multiplier	0		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0	mg/L	
Acute Criterion	0.0077	mg/L	RP for Acute?		NO
Chronic Criterion	0.0008	mg/L	RP for Chronic?		NO
Human Health Criterion	0	mg/L	RP for Human Health?		N/A
Effluent Data					
#		#		#	
1	ND	7	ND	13	ND
2	ND	8	ND	14	ND
3	ND	9	ND	15	ND
4	ND	10	ND	16	ND
5	ND	11	ND	17	ND
6	ND	12	ND	18	ND

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Chromium (Total)				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0.0008	mg/L	
Reporting Limit	0.0005	Coefficient of Variation (CV)	0.1472		
Significant Figures	4	RP Multiplier	1.096		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.0008764	mg/L	
Acute Criterion	0.05	mg/L	RP for Acute?	NO	
Chronic Criterion	0	mg/L	RP for Chronic?	N/A	
Human Health Criterion	0	mg/L	RP for Human Health?	N/A	
Effluent Data					
#		#		#	
1	ND	7	0.0006	13	ND
2	ND	8	ND	14	ND
3	0.0008	9	ND	15	0.0005
4	ND	10	ND	16	ND
5	ND	11	ND	17	ND
6	ND	12	ND	18	0.0005

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Copper				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0.027	mg/L	
Reporting Limit	0.001	Coefficient of Variation (CV)	0.8173		
Significant Figures	4	RP Multiplier	1.561		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.04215	mg/L	
Acute Criterion	0.05	mg/L	RP for Acute?	NO	
Chronic Criterion	0.03	mg/L	RP for Chronic?	YES	
Human Health Criterion	0	mg/L	RP for Human Health?	N/A	
Effluent Data					
#		#		#	
1	0.014	7	0.019	13	0.023
2	0.018	8	0.015	14	0.016
3	0.0193	9	0.013	15	0.0142
4	0.018	10	0.009	16	0.022
5	0.022	11	0.027	17	0.018
6	0.022	12	0.022	18	0.00105

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Lead				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0	mg/L	
Reporting Limit	0.0005	Coefficient of Variation (CV)	0		
Significant Figures	4	RP Multiplier	0		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0	mg/L	
Acute Criterion	0.015	mg/L	RP for Acute?		NO
Chronic Criterion	0.019	mg/L	RP for Chronic?		NO
Human Health Criterion	0	mg/L	RP for Human Health?		N/A
Effluent Data					
#		#		#	
1	ND	7	ND	13	ND
2	ND	8	ND	14	ND
3	ND	9	ND	15	ND
4	ND	10	ND	16	ND
5	ND	11	ND	17	ND
6	ND	12	ND	18	ND

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Mercury				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0.0000051	mg/L	
Reporting Limit	0.0000005	Coefficient of Variation (CV)	0.5505		
Significant Figures	4	RP Multiplier	1.528		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.000007793	mg/L	
Acute Criterion	0.002	mg/L	RP for Acute?		NO
Chronic Criterion	0.000012	mg/L	RP for Chronic?		NO
Human Health Criterion	0	mg/L	RP for Human Health?		N/A
Effluent Data					
#		#		#	
1	0.0000037	7	0.0000041	13	0.0000029
2	0.0000018	8	0.0000019	14	
3	0.0000032	9	0.0000051	15	
4	0.0000012	10	0.0000017	16	
5	0.0000011	11	0.0000039	17	
6	0.0000018	12	0.0000013	18	

RP Procedure Output				
Facility Name:	Central Davis			
Permit Number:	UT0020974			
Outfall Number:	Outfall 001			
Parameter	Nickel			
Distribution	Delta-Lognormal			
Data Units	mg/L	Maximum Reported Effluent Conc.	0.0079	mg/L
Reporting Limit	0.0005	Coefficient of Variation (CV)	0.2525	
Significant Figures	4	RP Multiplier	1.167	
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.009223	mg/L
Acute Criterion	0.61	mg/L	RP for Acute?	NO
Chronic Criterion	0.1685	mg/L	RP for Chronic?	NO
Human Health Criterion	0	mg/L	RP for Human Health?	N/A
Effluent Data				
#		#		#
1	0.0071	7	0.0038	13
2	0.0055	8	0.0079	14
3	0.0038	9	0.0046	15
4	0.006	10	0.0056	16
5	0.0054	11	0.0039	17
6	0.0047	12	0.0055	18

RP Procedure Output				
Facility Name:	Central Davis			
Permit Number:	UT0020974			
Outfall Number:	Outfall 001			
Parameter	Selenium			
Distribution	Delta-Lognormal			
Data Units	mg/L	Maximum Reported Effluent Conc.	0.0037	mg/L
Reporting Limit	0.0005	Coefficient of Variation (CV)	0.3923	
Significant Figures	4	RP Multiplier	1.266	
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.004683	mg/L
Acute Criterion	0.018	mg/L	RP for Acute?	NO
Chronic Criterion	0.0046	mg/L	RP for Chronic?	YES
Human Health Criterion	0	mg/L	RP for Human Health?	N/A
Effluent Data				
#		#		#
1	0.0017	7	0.001	13
2	0.0017	8	0.0026	14
3	0.0015	9	0.002	15
4	0.002	10	0.0013	16
5	0.0016	11	0.001	17
6	0.001	12	0.0015	18

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Silver				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0	mg/L	
Reporting Limit	0.0005	Coefficient of Variation (CV)	0		
Significant Figures	4	RP Multiplier	0		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0	mg/L	
Acute Criterion	0.035	mg/L	RP for Acute?	NO	
Chronic Criterion	0	mg/L	RP for Chronic?	N/A	
Human Health Criterion	0	mg/L	RP for Human Health?	N/A	
Effluent Data					
#		#		#	
1	ND	7	ND	13	ND
2	ND	8	ND	14	ND
3	ND	9	ND	15	ND
4	ND	10	ND	16	ND
5	ND	11	ND	17	ND
6	ND	12	ND	18	ND

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Molybdenum				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0.0061	mg/L	
Reporting Limit	0.0005	Coefficient of Variation (CV)	0.1279		
Significant Figures	4	RP Multiplier	1.083		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.006603	mg/L	
Acute Criterion	0	mg/L	RP for Acute?	N/A	
Chronic Criterion	0	mg/L	RP for Chronic?	N/A	
Human Health Criterion	0	mg/L	RP for Human Health?	N/A	
Effluent Data					
#		#		#	
1	0.0059	7	0.0048	13	0.0045
2	0.0061	8	0.005	14	0.005
3	0.0039	9	0.0045	15	0.0055
4	0.0046	10	0.0058	16	0.0051
5	0.0047	11	0.0055	17	0.0041
6	0.0058	12	0.0046	18	0.0053

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Zinc				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0.04	mg/L	
Reporting Limit	0.01	Coefficient of Variation (CV)	0.4008		
Significant Figures	4	RP Multiplier	1.272		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.05087	mg/L	
Acute Criterion	0.379	mg/L	RP for Acute?	NO	
Chronic Criterion	0.388	mg/L	RP for Chronic?	NO	
Human Health Criterion	0	mg/L	RP for Human Health?	N/A	
Effluent Data					
#		#		#	
1	0.02	7	0.03	13	0.04
2	0.02	8	0.02	14	0.03
3	0.02	9	0.04	15	ND
4	0.04	10	0.02	16	0.02
5	0.03	11	0.03	17	0.02
6	0.03	12	0.03	18	0.01

RP Procedure Output					
Facility Name:	Central Davis				
Permit Number:	UT0020974				
Outfall Number:	Outfall 001				
Parameter	Cyanide				
Distribution	Delta-Lognormal				
Data Units	mg/L	Maximum Reported Effluent Conc.	0.04	mg/L	
Reporting Limit	0.002	Coefficient of Variation (CV)	0.4008		
Significant Figures	4	RP Multiplier	1.272		
Confidence Interval	95	Projected Maximum Effluent Conc. (MEC)	0.05087	mg/L	
Acute Criterion	0.379	mg/L	RP for Acute?	NO	
Chronic Criterion	0.388	mg/L	RP for Chronic?	NO	
Human Health Criterion	0	mg/L	RP for Human Health?	N/A	
Effluent Data					
#		#		#	
1	0.02	7	0.03	13	0.04
2	0.02	8	0.02	14	0.03
3	0.02	9	0.04	15	ND
4	0.04	10	0.02	16	0.02
5	0.03	11	0.03	17	0.02
6	0.03	12	0.03	18	0.01

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
SALT LAKE CITY, UTAH

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Major Municipal Permit No. **UT0020974**
Biosolids Permit No. **UTL020947**

In compliance with provisions of the Utah *Water Quality Act, Title 19, Chapter 5, Utah Code Annotated ("UCA") 1953, as amended* (the "Act"),

CENTRAL DAVIS SEWER DISTRICT

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **GREAT SALT LAKE FARMINGTON BAY,**

to dispose of biosolids,

and to discharge storm water,

in accordance with specific limitations, outfalls, and other conditions set forth herein.

This permit shall become effective on May 1, 2020

This permit expires at midnight on April 30, 2025.

Signed this 23rd day of April, 2020.



Erica Brown Gaddis, PhD
Director

DWQ-2019-019717

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

- A. Description of Discharge Points. The authorization to discharge wastewater provided under this part is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are violations of the *Act* and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40°59'54" and longitude 111°57'01", the discharge enters an unnamed channel on the permittee's property and proceeds northwest continuing on the permittee's property in said unnamed channel into wetlands on the permittee's property and from there to the Great Salt Lake Transitional Waters then into Farmington Bay.

- B. Narrative Standard. It shall be unlawful, and a violation of this permit, for the permittee to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum, or other nuisances such as color, odor or taste, or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by a bioassay or other tests performed in accordance with standard procedures.
- C. Specific Limitations and Self-Monitoring Requirements.
1. Effective immediately, and lasting through the life of this permit, there shall be no acute toxicity in Outfall(s) 001 as defined in *Part VIII*, and determined by test procedures described in *Part I. C.4.a & b* of this permit.
 2. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

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Table 1					
Parameter	Effluent Limitations^a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
BOD ₅ , mg/L	25	35	--	--	--
BOD ₅ Min. % Removal	80	--	--	--	--
TSS, mg/L	25	35	--	--	--
TSS Min. % Removal	80	--	--	--	--
<i>E. coli</i> , No./100mL	126	157	--	--	--
pH, Standard Units	--	--	--	6.5	9
Oil & Grease, mg/L	--	--	--	--	10.0
Total Phosphorus, mg/L ^h	--	--	1	--	--
WET, Acute Biomonitoring	--	--	--	--	100% effluent

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Table 2			
Self-Monitoring and Reporting Requirements^{a, b}			
Parameter	Frequency	Sample Type	Units
Total Flow ^{c, d}			
Effluent	Continuous	Recorder	MGD
BOD ₅			
Influent ^e	3 x weekly	Composite	mg/L
Effluent	3 x weekly	Composite	mg/L
TSS			
Influent ^e	3 x weekly	Composite	mg/L
Effluent	3 x weekly	Composite	mg/L
<i>E. coli</i>			
Effluent	3 x weekly	Grab	No./100mL
Total Ammonia (as N)			
Effluent	3 x weekly	Grab	mg/L
pH			
Effluent	3 x weekly	Grab	SU
Temperature, mg/L			
Effluent	3 x weekly	Recorder	Fahrenheit
Oil & Grease ^{f, g}			
Effluent	When Sheen Observed	Grab	mg/L
TRC, mg/L			
Effluent	3 x weekly	Grab	mg/L
Orthophosphate (as P) ^h			
Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P)			
Influent ^h	Monthly	Grab	mg/L
Effluent ^h	Monthly	Grab	mg/L
Total Phosphorus (as P)			
Effluent	Monthly	Calculated	lbs
Total Kjeldahl Nitrogen (TKN (as N))			
Influent ^h	Monthly	Composite	mg/L
Effluent ^h	Monthly	Composite	mg/L
Nitrate, NO ₃			
Effluent	Monthly	Composite	mg/L
Nitrite, NO ₂			
Effluent	Monthly	Composite	mg/L
WET – Biomonitoring ^{i, k}			
<i>Ceriodaphnia</i> - Acute	1 st & 3 rd Quarter	Composite	Pass/Fail
Fathead Minnows - Acute	2 nd & 4 th Quarter	Composite	Pass/Fail
<i>Ceriodaphnia</i> – Chronic ^l	1 st & 3 rd Quarter	Composite	Pass/Fail
Fathead Minnows – Chronic ^l	2 nd & 4 th Quarter	Composite	Pass/Fail
Metals			
Influent ^{m, n, o}	Quarterly	Composite	mg/L
Effluent ^{m, n, o}	Quarterly	Composite	mg/L
Organic Toxics			
Effluent	Annually	Grab	mg/L

Table References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- d. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- e. In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.
- f. There shall be no visible sheen or floating solids or visible foam in other than trace amounts.
- g. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under "NODI" in NetDMR.
- h. These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule.
- i. The permittee shall calculate phosphorus load in pounds each month and show a cumulative total of the yearly pounds for each monthly report until December. January 1, of each year, the permittee will start at zero so that the phosphorus load is totalized from January to December on the monthly reports each year. Phosphorus load shall be calculated using the total volume from a monthly flow and the average of the monthly phosphorus concentrations.
- j. The acute and chronic Ceriodaphnia will be tested during the 1st and 3rd, and the acute and chronic fathead minnows will be tested during the 2nd and 4th quarters.
- k. TUC is calculated by dividing the receiving water effluent concentration determined in accordance with R317-2-5 by the chronic test IC₂₅. The TUC is an indicator and an exceedance is not used for determining compliance. Report IC Value.
- l. Chronic WET tests will be considered an indicator for Class 5 waters of the Great Salt Lake because of uncertainties regarding the representativeness of the standard test species for the Great Salt Lake.
- m. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- n. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if CDS D decides to sample more frequently for these parameters, the additional data will be welcome.
- o. Metals
 - Arsenic
 - Cadmium
 - Total Chromium
 - Copper
 - Cyanide
 - Lead
 - Mercury
 - Nickel
 - Selenium
 - Silver
 - Zinc

Table References End

- 3. Copper Criterion Study (Study)
 - a. CDS D shall conduct a study to gather data to support application of the copper biotic ligand model. Monitoring shall be conducted for copper, pH, temperature, alkalinity, major cations (calcium, magnesium, sodium, and potassium), and major anions (sulfate, chloride).

- b. Parameters must be samples on the same day and analyzed within the holding time frames.
- c. A Plan shall be developed and approved by DWQ within 6 months of the effective date of this permit to demonstrate how the Study will be conducted.
- d. The Study shall include an annual progress report due by January 31 the following year.
- e. The Study shall conclude after four consecutive years.
- f. The completed Study shall be submitted to DWQ with the UPDES renewal application.

4. Chronic Whole Effluent Toxicity (WET) Testing.

- a. *Whole Effluent Testing – Chronic Toxicity.* Starting immediately, the permittee shall quarterly, conduct acute static renewal toxicity tests on a composite sample of the final effluent at Outfall(s). The sample shall be collected at the point of compliance before mixing with the receiving water.

The monitoring frequency for acute tests shall be quarterly unless a sample is found to be acutely toxic during a routine test. If that occurs, the monitoring frequency shall become weekly (See *Part I.C.4.b*, Accelerated Testing). Unless otherwise approved by the Director, samples shall be collected on a two day progression; i.e., if the first sample is on a Monday, during the next sampling period, the sampling shall begin on a Wednesday, etc.

The static-renewal acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012 as per 40 CFR 136.3(a) TABLE IA-LIST OF APPROVED BIOLOGICAL METHODS. The permittee shall conduct the 48-hour static renewal toxicity test using *Ceriodaphnia dubia* (solution renewal every 24 hours) and the acute 96-hour static renewal toxicity test using *Pimephales promelas* (fathead minnow) solution renewal every 24 hours. Based on the Test Acceptability Criteria included in Utah Pollutant Discharge Elimination System (UPDES) Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (Biomonitoring) January, 2017, the Director may require acceptable variations in the test, i.e. temperature, carbon dioxide atmosphere, or any other acceptable variations in the testing procedure, as documented in the Fact Sheet Statement of Basis. If possible dilution water should be taken from the receiving stream. A valid replacement test is required within the specified sampling period to remain in compliance.

Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the results to be considered valid. If more than 10 percent control survival occurs, the test shall be repeated until satisfactory control mortality is achieved. The permittee shall meet all QA/QC requirements of the acute WET testing method listed in this Section of the permit.

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If the permit contains a total residual chlorine limitation such that it may interfere with WET testing (>0.20 mg/L), the permittee may dechlorinate the sample in accordance with approved USEPA methods for WET testing the sample. If dechlorination is affecting the test, the permittee may collect the sample just before chlorination with Director approval.

Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the required reporting period quarter e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28. Monthly test results shall be reported along with the DMR submitted for that month. The format for the report shall be consistent with Appendix C of "Utah Pollutant Discharge Elimination System (UPDES) Permitting and Enforcement Guidance Document for Whole Effluent Toxicity (Biomonitoring), Utah Division of Water Quality, February 2018.

If the results for ten consecutive tests indicate no acute toxicity, the permittee may request a reduction in acute toxicity testing by a reduction in monitoring frequency, alternating species, or using only the most sensitive species. The Director may approve or deny the request. If the request is approved, the test procedures are to be the same as specified above for the test species. Under no circumstances shall monitoring for WET at major facilities be reduced less than quarterly. Minor facilities may be less than quarterly at the discretion of the Director.

- b. *Accelerated Testing.* When whole effluent toxicity is indicated during routine WET testing as specified in this permit, the permittee shall notify the Director in writing within 5 days after becoming aware of the test result. The permittee shall perform an accelerated schedule of WET testing to establish whether a pattern of toxicity exists unless the permittee notifies the Director and commences a PTI, TIE, or a TRE. Accelerated testing or the PTI, TIE, or TRE will begin within fourteen days after the permittee becomes aware of the test result. Accelerated testing shall be conducted as specified under Part I. Pattern of Toxicity. If the accelerated testing demonstrates no pattern of toxicity, routine monitoring shall be resumed.
- c. *Pattern of Toxicity.* A pattern of toxicity is defined by the results of a series of up to five biomonitoring tests pursuant to the accelerated testing requirements using a full set of dilutions for acute (five plus the control) and five effluent dilutions for chronic (five plus the control), on the species found to be more sensitive, once every week for up to five consecutive weeks for acute and once every two weeks up to ten consecutive weeks for chronic.

If two (2) consecutive tests (not including the scheduled test which triggered the search for a pattern of toxicity) do not result in an exceedance of the acute or chronic toxicity criteria, no further accelerated testing will be required and no pattern of toxicity will be found to exist. The permittee will provide written verification to the Director within 5 days of determining no pattern of toxicity exists, and resume routine monitoring.

A pattern of toxicity may or may not be established based on the following:

WET tests should be run at least weekly (acute) or every two weeks (chronic) (note that only one test should be run at a time), for up to 5 tests, until either:

1) 2 consecutive tests fail, or 3 out of 5 tests fail, at which point a pattern of toxicity will have been identified, or

2) 2 consecutive tests pass, or 3 out of 5 tests pass, in which case no pattern of toxicity is identified.

d. *Preliminary Toxicity Investigation.*

- (1) When a pattern of toxicity is detected the permittee will notify the Director in writing within 5 days and begin an evaluation of the possible causes of the toxicity. The permittee will have 15 working days from demonstration of the pattern of toxicity to complete an optional Preliminary Toxicity Investigation (PTI) and submit a written report of the results to the Director. The PTI may include, but is not limited to: additional chemical and biological monitoring, examination of pretreatment program records, examination of discharge monitoring reports, a thorough review of the testing protocol, evaluation of treatment processes and chemical use, inspection of material storage and transfer areas to determine if any spill may have occurred.
 - (2) If the PTI identifies a probable toxicant and/or a probable source of toxicity, the permittee shall submit, as part of its final results, written notification of that effect to the Director. Within thirty days of completing the PTI the permittee shall submit to the Director for approval a control program to control effluent toxicity and shall proceed to implement such plan in accordance with the Director's approval. The control program, as submitted to or revised by the Director, will be incorporated into the permit. After final implementation, the permittee must demonstrate successful removal of toxicity by passing a two species WET test as outlined in this permit. With adequate justification, the Director may extend these deadlines.
 - (3) If no probable explanation for toxicity is identified in the PTI, the permittee shall notify the Director as part of its final report, along with a schedule for conducting a Phase I Toxicity Reduction Evaluation (TRE) (see Part e Toxicity Reduction Evaluation
 - (4) If toxicity spontaneously disappears during the PTI, the permittee shall submit written notification to that effect to the Director, with supporting testing evidence.
- e. *Toxicity Reduction Evaluation (TRE).* If a pattern of toxicity is detected the permittee shall initiate a TIE/TRE within 7 days unless the Director has accepted the decision to complete a PTI. With adequate justification, the Director may extend the 7-day deadline. The purpose of the TIE portion of a

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TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and the TRE will control or provide treatment for the toxicity.

A TRE may include but is not limited to one, all, or a combination of the following:

- (1) Phase I – Toxicity Characterization
- (2) Phase II – Toxicity Identification Procedures
- (3) Phase III – Toxicity Control Procedures
- (4) Any other appropriate procedures for toxicity source elimination and control.

If the TRE establishes that the toxicity cannot be immediately eliminated, the permittee shall submit a proposed compliance plan to the Director. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Director, this permit may be reopened and modified.

If toxicity spontaneously disappears during the TIE/TRE, the permittee shall submit written notification to that effect to the Director.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations, the permittee shall submit the following:

- (a) An alternative control program for compliance with the numerical requirements.
- (b) If necessary, as determined by the Director, provide a modified biomonitoring protocol which compensates for the pollutant(s) being controlled numerically.

This permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the Director, and/or modified WET testing requirements without public notice.

Failure to conduct an adequate TIE/TRE plan or program as described above, or the submittal of a plan or program judged inadequate by the Director, shall be considered a violation of this permit. After implementation of TIE/TRE plan, the permittee must demonstrate successful removal of toxicity by passing a two species WET test as outlined in this permit.

D. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported in NetDMR no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required

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herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR, or to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

2. Annual Reporting of Wastewater Monitoring Results. Monitoring results obtained during the previous year shall be summarized and included in the Municipal Wastewater Planning Program (MWPP) submitted annually by April 1st. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of Signatory Requirements (see Part VII.G), and submitted to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

3. Copper Criterion Study Progress Report. Annual Progress Reports are due by January 31st of the following year. The plan, progress reports and documents for the Copper Criterion Study shall be signed and certified in accordance with the requirements of Signatory Requirements (see Part VII.G) and submitted to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

II. INDUSTRIAL PRETREATMENT PROGRAM

- A. Pretreatment Program Delegation. The permittee has been delegated primary responsibility for enforcing against discharges prohibited by *40 CFR 403.5* and applying and enforcing any national Pretreatment Standards established by the United States Environmental Protection Agency in accordance with Section 307 (b) and (c) of *The Clean Water Act (CWA)*, as amended by *The Water Quality Act (WQA)*, of 1987.

The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, and procedures described in the permittee's approved Pretreatment Program submission. Such program commits the permittee to do the following:

1. Carry out inspection, surveillance, and monitoring procedures, which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the pretreatment standards. At a minimum, all significant industrial users shall be inspected and sampled by the permittee at least once per year;
2. Control through permit, order, or similar means, the contribution to the POTW by each industrial user to ensure compliance with applicable pretreatment standards and requirements;
3. Require development, as necessary, of compliance schedules by each industrial user for the installation of control technologies to meet applicable pretreatment standards;
4. Maintain and update industrial user information as necessary, to ensure that all IUs are properly permitted and/or controlled at all times;
5. Enforce all applicable pretreatment standards and requirements and obtain appropriate remedies for noncompliance by any industrial user;
6. Annually publish a list of industrial users that were determined to be in significant noncompliance during the previous year. The notice must be published before March 28 of the following year;
7. Maintain an adequate revenue structure and staffing level for continued implementation of the Pretreatment Program.
8. Evaluate all significant industrial users at least once every two years to determine if they need to develop a slug prevention plan. If a slug prevention plan is required, the permittee shall insure that the plan contains at least the minimum elements required in *40 CFR 403.8(f)(2)(v)*;
9. Notify all significant industrial users of their obligation to comply with applicable requirements under *Subtitles C and D* of the *Resource Conservation and Recovery Act (RCRA)*; and
10. Develop, implement, and maintain an enforcement response plan as required by *40 CFR 403.8(f)(5)* which shall, at a minimum,
 - a. Describe how the POTW will investigate instances of noncompliance;

PART II
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- b. Describe the types of escalating enforcement responses the POTW will take in response to all anticipated type of industrial user violations; and
 - c. Describe the time periods within which such responses will be taken and identify the POTW staff position(s) responsible for pursuing these actions.
11. Establish and enforce specific local limits as necessary to implement the provisions of the *40 CFR Parts 403.5(a) and (b)*, and as required by *40 CFR Part 403.5(c)*.
- B. Program Updates. The permittee is required to modify its pretreatment program, as necessary, to reflect changes in the regulations of *40 CFR 403*. Such modifications shall be completed within the time frame set forth by the applicable regulations. Modification of the approved pretreatment program must be done in accordance with the requirements of *40 CFR 403.18*. Modifications of the approved program which result in less stringent industrial user requirements shall not be effective until after approval has been granted by the Director.
- C. Annual Report. The permittee shall provide the Division of Water Quality and EPA with an annual report briefly describing the permittee's pretreatment program activities over the previous calendar year. Reports shall be submitted no later than March 28 of each year. These annual reports shall, at a minimum, include:
1. An updated listing of the permittee's industrial users.
 2. A descriptive summary of the compliance activities including numbers of any major enforcement actions, i.e., administrative orders, penalties, civil actions, etc.
 3. An assessment of the compliance status of the permittee's industrial users and the effectiveness of the permittee's Pretreatment Program in meeting its needs and objectives.
 4. A summary of all sampling data taken of the influent and effluent for those pollutants listed in *Part II.H*.
 5. A description of all substantive changes made to the permittee's pretreatment program referenced in *Section B* of this section. Substantive changes include, but are not limited to, any change in any ordinance, major modification in the program's administrative structure or operating agreement(s), a significant reduction in monitoring, or a change in the method of funding the program.
 6. Other information as may be determined necessary by the Director.
- D. General and Specific Prohibitions. Pretreatment standards (*40 CFR 403.5*) specifically prohibit the introduction of the following pollutants into the waste treatment system from any source of non-domestic discharge:
1. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than 140oF (60oC);
 2. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;

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3. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;
 4. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at such volume or strength as to cause interference in the POTW;
 5. Heat in amounts, which will inhibit biological activity in the POTW, resulting in interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104°F (40°C);
 6. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 7. Pollutants, which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems;
 8. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or
 9. Any pollutant that causes pass through or interference at the POTW.
 10. Any specific pollutant which exceeds any local limitation established by the POTW in accordance with the requirement of *40 CFR 403.5(c)* and *40 CFR 403.5(d)*.
- E. Categorical Standards. In addition to the general and specific limitations expressed in *Part A and D* of this section, applicable National Categorical Pretreatment Standards must be met by all industrial users of the POTW. These standards are published in the federal regulations at *40 CFR 405 et. seq.*
- F. Enforcement Notice. *UCA 19-5-104* provides that the State may issue a notice to the POTW stating that a determination has been made that appropriate enforcement action must be taken against an industrial user for noncompliance with any pretreatment requirements within 30 days. The issuance of such notice shall not be construed to limit the authority of the Director.
- G. Formal Action. The Director retains the right to take legal action against any industrial user and/or POTW for those cases where a permit violation has occurred because of the failure of an industrial user to meet an applicable pretreatment standard.
- H. Self-Monitoring and Reporting Requirements.
1. Influent and Effluent Monitoring and Reporting Requirements. The permittee shall sample and analyze both the influent and effluent quarterly for metals and yearly for TTO, for the parameters listed in the Monitoring for Pretreatment Program Table.

The results of the analyses of metals, cyanide and toxic organics shall be submitted along with the Discharge Monitoring Report (DMR) at the end of the earliest possible reporting period.

For local limit parameters it is recommended that the most sensitive method be used for analysis. This will determine if the parameter is present and provide removal efficiencies based on actual data rather than literature values. If a parameter load is greater than the allowable head works load, for any pollutant listed in Part II.H.1. or a pollutant of

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concern listed in the local limit development document, the permittee must report the exceedances to the DWQ's Pretreatment Coordinator. If the loading exceeds the allowable headworks load, increase sampling must occur based on the requirements given by the DWQ's Pretreatment Coordinator. If needed sampling may need to occur to find the source(s) of the increase. This may include sampling of the collection system. Notification regarding the exceedances of the allowable headworks loading can be provided via email.

Monitoring for Pretreatment Program Table				
Parameter	MDL a*	Sample Type	Frequency	Units
Total Aluminum	NA	Composite	Quarterly	mg/L
Total Arsenic	NA			
Total Cadmium	NA			
Total Chromium	NA			
Total Copper	0.042			
Total Lead	NA			
Total Molybdenum	NA			
Total Nickel	NA			
Total Selenium	0.0046			
Total Silver	NA			
Total Zinc	NA			
Total Cyanide	NA	Composite/Grab	Yearly	
Total Mercury	NA			
TTOs, b*	NA			

a* The minimum detection limit (MDL) of the test method used for analysis must be below this limit, if a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.

b* In addition, the permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in 40 CFR 122 Appendix D Table II (Organic Toxic Pollutants). The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.

- In accordance with the requirements of 40 CFR Part 403.5(c), the permittee shall determine if there is a need to develop or revise its local limits in order to implement the general and specific prohibitions of 40 CFR Part 403.5 (a) and Part 403.5 (b). A technical evaluation of the need to develop or revise local limits shall be submitted to the Division within 12 months of the effective date of this permit. This evaluation should be conducted in accordance with the latest revision of the EPA Local Limits Development Guidance. If a technical evaluation, reveals that development or revision of local limits is necessary, the permittee shall submit the proposed local limits revision to the Division of Water Quality for approval, and after approval implement the new local limits, within 12 months of the Division's determination that a revision is necessary.

III. BIOSOLIDS REQUIREMENTS

A. Biosolids Treatment and Disposal. The authorization to dispose of biosolids provided under this permit is limited to those biosolids produced from the treatment works owned and operated by the permittee. The treatment methods and disposal practices are designated below.

1. Treatment

- a. Anaerobic Biosolids. The solids are stabilized in primary anaerobic digester with a mean cell residence time that fluctuates from 33 to 47 days and at a temperature of at least 35°C (95°F). The solids then go to a secondary digester. After stabilization, the biosolids are de-watered then land applied.
- b. Aerobic Biosolids. After the biosolids are stabilized in the oxidation ditches, the biosolids are dewatered, mixed with wood chips and green waste and composted using the windrow method or the aerated static pile composting method, then sold or given away to the public.

2. Description of Biosolids Disposal Method

- a. Class A biosolids may be sold or given away to the public for lawn and garden use or land application.
- b. Class B biosolids may be land applied for agriculture use or at reclamation sites at agronomic rates.
- c. Biosolids may be disposed of in a landfill or transferred to another facility for treatment and/or disposal.

3. Changes in Treatment Systems and Disposal Practices.

- a. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 30 days in advance if the process/method is specified in 40 CFR 503. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.
- b. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 180 days in advance if the process/method is not specified in 40 CFR 503. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.

For any biosolids that are land filled, the requirements in *Section 2.12* of the latest version of the *EPA Region VIII Biosolids Management Handbook* must be followed

B. Specific Limitations and Monitoring Requirements. All biosolids generated by this facility to be sold or given away to the public shall meet the requirements of *Part III.B.1, 2, 3 and 4* listed below.

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1. Metals Limitations. All biosolids sold or given away in a bag or similar container for application to lawns and home gardens must meet the metals limitations as described below. If these metals limitations are not met, the biosolids must be landfilled.

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits *, † (mg/kg)	CPLR ‡ (mg/ha)	Pollutant Conc. Limits 1, 2, (mg/kg)	APLR §, (mg/ha-yr)
Total Arsenic	75	41	41	41
Total Cadmium	85	39	39	39
Total Copper	4300	1500	1500	1500
Total Lead	840	300	300	300
Total Mercury	57	17	17	17
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	420
Total Selenium	100	100	100	100
Total Zinc	7500	2800	2800	2800

2. Pathogen Limitations. All biosolids sold or given away in a bag or a similar container for application to lawns and home gardens must meet the pathogen limitations for Class A. Land applied biosolids must meet the pathogen limitations for Class B as described below. If the pathogen limitations are not met, the biosolids must be landfilled.
- a. Class A biosolids shall meet one of the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Further Reduce Pathogens as defined in *40 CFR Part 503.32(a) Sewage Sludge – Class A.*
- (1) CDS D currently uses the following practices to meet Class A Pathogen requirements found under (*40 CFR 503.32(a)(7)(ii)*), (*Appendix B, B.1.*):
- (a) Windrow Method - Using the windrow method of composting, the temperature needs to be maintained at 55°C (131°F) or higher for fifteen days, with a minimum of five turnings during those fifteen days,
- (b) Static Aerated Pile Method - Composting using the static aerated pile method, the temperature of the biosolids is maintained at 55°C (131°F) or higher for at least 3 days.
- b. Class B biosolids shall meet the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Significantly Reduce Pathogens as defined in 40 CFR Part 503.32(b) *Sewage Sludge*

* The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application

† These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.

‡ CPLR -- Cumulative Pollutant Loading Rate

§ APLR – Annual Pollutant Loading Rate

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– *Class B.* In addition, the permittee shall comply with all applicable site restrictions listed below (40 CFR Part 503.32, (b), (5)):

- (1) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.
- (2) Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remains on the land surface for four months or more prior to incorporation into the soil.
- (3) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil.
- (4) Food crops, feed crops, and fiber crops shall not be harvested from the land for 30 days after application.
- (5) Animals shall not be allowed to graze on the land for 30 days after application.
- (6) Turf grown on land where biosolids is applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- (7) Public access to land with a high potential for public exposure shall be restricted for one year after application.
- (8) Public access to land with a low potential for public exposure shall be restricted for 30 days after application.
- (9) The sludge or the application of the sludge shall not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of critical habitat of a threatened or endangered species after application.

Pathogen Control Class	
503.32 (a)(1) - (5), (7),-(8), Class A	503.32 (b)(1) - (5), Class B
B Salmonella species –less than three (3) MPN** per four (4) grams total solids (DWB)†† or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – less than 2,000,000 MPN or CFU‡‡ per gram total solids (DWB).
503.32 (a)(6) Class A—Alternative 4	
B Salmonella species –less than three (3) MPN per four (4) grams total solids (DWB) or less than 1,000 MPN Fecal Coliforms per gram total solids (DWB),	

** MPN – Most Probable Number

†† DWB – Dry Weight Basis.

‡‡ CFU – Colony Forming Units

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Pathogen Control Class	
503.32 (a)(1) - (5), (7),-(8), Class A	503.32 (b)(1) - (5), Class B
And - Enteric viruses –less than one (1) plaque forming unit per four (4) grams total solids (DWB)	
And - Viable helminth ova –less than one (1) per four (4) grams total solids (DWB)	

3. Vector Attraction Reduction Requirements.

a. The permittee will meet vector attraction reduction through use of one of the methods listed in *40 CFR 503.33*. Facility is meeting the requirements through the following methods.

- (1) Facility is meeting vector attraction reduction through 38% VSS Reduction. Under *40 CFR 503.33(b)(1)*, the solids need to be treated through anaerobic digestion for at least 15 days at a temperature of at least 35° C (95° F) with a 38% reduction of volatile solids..
- (2) Facility is also meeting vector attraction reduction through composting. Under *40 CFR 503.33(b)(5)* the solids need to be treated through composting with a temperature of 40° C (104° F) or higher for at least 14 days with an average temperature of over 45° C (113° F).

If the permittee intends to use another one of the alternatives, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public comment.

4. Self-Monitoring Requirements.

a. At a minimum, upon the effective date of this permit, all chemical pollutants, pathogens and applicable vector attraction reduction requirements shall be monitored according to *40 CFR 503.16(1)(a)*.

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500 ^{§§}	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

b. Sample collection, preservation and analysis shall be performed in a manner consistent with the requirements of *40 CFR 503* and/or other criteria specific to this

^{§§} CDS has on average produced approximately 700 Dry Metric Tons in annually over the last 10 years. Accordingly, they will sample at least six(6) times per year.

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permit. A metals analysis is to be performed using *Method SW 846* with *Method 3050* used for digestion. For the digestion procedure, an amount of biosolids equivalent to a dry weight of one gram shall be used. The methods are also described in the latest version of the *Region VIII Biosolids Management Handbook*.

- c. The Director may request additional monitoring for specific pollutants derived from biosolids if the data shows a potential for concern.
- d. After two (2) years of monitoring at the frequency specified, the permittee may request that the Director reduce the sampling frequency for the heavy metals. The frequency cannot be reduced to less than once per year for biosolids that are sold or given away to the public for any parameter. The frequency also cannot be reduced for any of the pathogen or vector attraction reduction requirements listed in this permit.

C. Management Practices of Biosolids.

1. Biosolids Distribution Information

- a. For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
 - (1) The name and address of the person who prepared the biosolids for a sale or to be given away.
 - (2) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.

2. Biosolids Application Site Storage

- a. For biosolids or material derived from biosolids that are stored in piles for one year or longer, measures shall be taken to ensure that erosion (whether by wind or water) does not occur. However, best management practices should also be used for piles used for biosolids treatment. If a treatment pile is considered to have caused a problem, best management practices could be added as a requirement in the next permit renewal

3. Land Application Practices

- a. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:
 - (1) The permittee shall provide to the Director and the EPA within 90 days of the effective date of this permit a land application plan.
 - (2) Application of biosolids shall be conducted in a manner that will not contaminate the groundwater or impair the use classification for that water underlying the sites.
 - (3) Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface

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runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the United States (as defined in 40 CFR 122.2).

- (4) No person shall apply biosolids for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to six percent unless one of the following requirements is met:
 - (a) there is 80 percent vegetative ground cover; or,
 - (b) approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
- (5) Application of biosolids is prohibited to frozen, ice-covered, or snow covered sites where the slope of the site exceeds six percent.
- (6) Agronomic Rate
 - (a) Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. At a minimum, the permittee is required to follow the methods for calculating agronomic rate outlined in the latest version of the *Region VIII Biosolids Management Handbook* (other methods may be approved by the Director). The treatment plant shall provide written notification to the applier of the biosolids of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Director is required to exceed the agronomic rate.
 - (b) The permittee may request the limits of *Part III, C, 6* be modified if different limits would be justified based on local conditions. The limits are required to be developed in cooperation with the local agricultural extension office or university.
 - (c) Deep soil monitoring for nitrate-nitrogen is required for all land application sites (does not apply to sites where biosolids are applied less than once every five years). A minimum of six samples for each 320 (or less) acre area is to be collected. These samples are to be collected down to either a 5 foot depth, or the confining layer, whichever is shallower (sample at 1 foot, 2 foot, 3 foot, 4 foot and 5 foot intervals). Each of these one-foot interval samples shall be analyzed for nitrate-nitrogen. In addition to the one-foot interval samples, a composite sample of the 5 foot intervals shall be taken, and analyzed for nitrate-nitrogen as well. Samples are required to be taken once every five years for non-irrigated sites that receive more than 18 inches of precipitation annually or for irrigated sites
- (7) Biosolids shall not be applied to any site area with standing surface water. If the annual high groundwater level is known or suspected to be within five feet of the surface, additional deep soil monitoring for nitrate-nitrogen as described in *Part III.C.(6),(c)*. is to be performed. At a minimum, this additional monitoring will involve a collection of more samples in the affected area and possibly more frequent sampling. The exact number of samples to be collected will be outlined in a deep soil monitoring plan to be submitted to the Director

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and the EPA within 90 days of the effective date of this permit. The plan is subject to approval by the Director.

- (8) The specified cover crop shall be planted during the next available planting season. If this does not occur, the permittee shall notify the Director in writing. Additional restrictions may be placed on the application of the biosolids on that site on a case-by-case basis to control nitrate movement. Deep soil monitoring may be increased under the discretion of the Director.
 - (9) When weather and or soil conditions prevent adherence to the biosolids application procedure, biosolids shall not be applied on the site.
 - (10) For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
 - (a) The name and address of the person who prepared the biosolids for sale or give away for application to the land.
 - (b) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
 - (c) The annual whole biosolids application rate for the biosolids that do not cause the metals loading rates in Tables 1, 2, and 3 (*Part III.B.1.*) to be exceeded.
 - (11) Biosolids subject to the cumulative pollutant loading rates in Table 2 (*Part III.B.1.*) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Table 2 have been reached.
 - (12) If the treatment plant applies the biosolids, it shall provide the owner or leaseholder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.
 - (13) The permittee shall inspect the application of the biosolids to active sites to prevent malfunctions and deterioration, operator errors and discharges, which may cause or lead to the release of biosolids to the environment or a threat to human health. The permittee must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment. The permittee shall keep an inspection log or summary including at least the date and time of inspection, the printed name and the handwritten signature of the inspector, a notation of observations made and the date and nature of any repairs or corrective action.
- D. Special Conditions on Biosolids Storage. Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two (2) years. Written permission to store biosolids for more than two years must be obtained from the Director. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.

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E. Representative Sampling. Biosolids samples used to measure compliance with *Part III* of this Permit shall be collected at locations representative of the quality of biosolids generated at the treatment works and immediately prior to land application.

F. Reporting of Monitoring Results.

1. Biosolids. The permittee shall provide the results of all monitoring performed in accordance with *Part III.B*, and information on management practices, biosolids treatment, site restrictions and certifications shall be provided no later than February 19 of each year. Each report is for the previous calendar year. If no biosolids were sold or given away during the reporting period, "no biosolids were sold or given away" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the *Signatory Requirements (see Part VII.G)*, and submitted to the Utah Division of Water Quality by NetDMR^{***} or at the following address:

Original to: Biosolids Coordinator
 Utah Division of Water Quality
 PO Box 144870
 Salt Lake City Utah, 84114-4870

G. Additional Record Keeping Requirements Specific to Biosolids.

1. Unless otherwise required by the Director, **the permittee is not required to keep records** on compost products if the permittee prepared them from biosolids that meet the limits in Table 3 (*Part III.B.1*), the Class A pathogen requirements in *Part III.B.2* and the vector attraction reduction requirements in *Part III.B.3*. The Director may notify the permittee that additional record keeping is required if it is determined to be significant to protecting public health and the environment.
2. **The permittee is required** to keep the following information for at least 5 years:
 - a. Concentration of each heavy metal in Table 3 (*Part III.B.1*).
 - b. A description of how the pathogen reduction requirements in *Part III.B.2* were met.
 - c. A description of how the vector attraction reduction requirements in *Part III.B.3* were met.
 - d. A description of how the management practices in *Part III.C* were met (if necessary).
 - e. The following certification statement:

"I certify under the penalty of law, that the heavy metals requirements in *Part III.B.1*, the pathogen requirements in *Part III.B.2*, the vector attraction requirements in *Part III.B.3*, the management practices in *Part III.C*. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction

*** Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Annual Biosolids Reports should also be submitted through this system.

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requirements and the management practices have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit for the life of the permit. Data collected on site, copies of Biosolids Report forms, and a copy of this UPDES biosolids-only permit must be maintained on site during the duration of activity at the permitted location.

IV. STORM WATER REQUIREMENTS.

- A. Coverage of This Section. The requirements listed under this section shall apply to storm water discharges. Storm water discharges from the following portions of the facility may be eligible for coverage under this permit: biosolids drying beds, haul or access roads on which transportation of biosolids may occur, grit screen cleaning areas, chemical loading, unloading and storage areas, salt or sand storage areas, vehicle or equipment storage and maintenance areas, or any other wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility that may have a reasonable expectation to contribute to pollutants in a storm water discharge.
- B. Prohibition of Non-Storm Water Discharges. Except for discharges identified in *Part I.*, and discharges described below in this paragraph, non-storm water discharges are prohibited. The following non-storm water discharges may be authorized under this permit provided the non-storm water component of the discharge is in compliance with this section; discharges from firefighting activities; fire hydrant flushing; potable water sources including waterline flushing; drinking fountain water; irrigation drainage and lawn watering; routine external building wash down water where detergents or other compounds have not been used in the process; pavement wash waters where spills or leaks of toxic or hazardous materials (including oils and fuels) have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated compressor condensate; uncontaminated springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
- C. Storm Water Pollution Prevention Plan Requirements. The permittee must have (on site) and implement a storm water pollution prevention plan as a condition of this permit.
1. Contents of the Plan. The plan shall include, at a minimum, the following items:
 - a. *Pollution Prevention Team.* Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team who are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.
 - b. *Description of Potential Pollutant Sources.* Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials which may be reasonably expected to have the potential as a significant pollutant source. Each plan shall include, at a minimum:
 - (1) *Drainage.* A site map indicating drainage areas and storm water outfalls. For each area of the facility that generates storm water discharges associated with the wastewater treatment related activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an identification of the types of pollutants that are likely to be present

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in storm water discharges associated with the activity. Factors to consider include the toxicity of the pollutant; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified. The site map shall include but not be limited to:

- (a) Drainage direction and discharge points from all wastewater associated activities including but not limited to grit screen cleaning, bio-solids drying beds and transport, chemical/material loading, unloading and storage areas, vehicle maintenance areas, salt or sand storage areas.
 - (b) Location of any erosion and sediment control structure or other control measures utilized for reducing pollutants in storm water runoff.
 - (c) Location of bio-solids drying beds where exposed to precipitation or where the transportation of bio-solids may be spilled onto internal roadways or tracked off site.
 - (d) Location where grit screen cleaning or other routinely performed industrial activities are located and are exposed to precipitation.
 - (e) Location of any handling, loading, unloading or storage of chemicals or potential pollutants such as caustics, hydraulic fluids, lubricants, solvents or other petroleum products, or hazardous wastes and where these may be exposed to precipitation.
 - (f) Locations where any major spills or leaks of toxic or hazardous materials have occurred.
 - (g) Location of any sand or salt piles.
 - (h) Location of fueling stations or vehicle and equipment maintenance and cleaning areas that are exposed to precipitation.
 - (i) Location of receiving streams or other surface water bodies.
 - (j) Locations of outfalls and the types of discharges contained in the drainage areas of the outfalls.
- (2) *Inventory of Exposed Materials.* An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of 3 years prior to the effective date of this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of 3 years prior to the effective date of this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.

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- (3) *Spills and Leaks.* A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of 3 years prior to the effective date of this permit. Such list shall be updated as appropriate during the term of the permit.
 - (4) *Sampling Data.* A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.
 - (5) *Summary of Potential Pollutant Sources and Risk Assessment.* A narrative description of the potential pollutant sources from the following activities associated with treatment works: access roads/rail lines; loading and unloading operations; outdoor storage activities; material handling sites; outdoor vehicle storage or maintenance sites; significant dust or particulate generating processes; and onsite waste disposal practices. Specific potential pollutants shall be identified where known.
- c. *Measures and Controls.* The permittee shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:
- (1) *Good Housekeeping.* All areas that may contribute pollutants to storm water discharges shall be maintained in a clean, orderly manner. These are practices that would minimize the generation of pollutants at the source or before it would be necessary to employ sediment ponds or other control measures at the discharge outlets. Where applicable, such measures or other equivalent measures would include the following: sweepers and covered storage to minimize dust generation and storm runoff; conservation of vegetation where possible to minimize erosion; sweeping of haul roads, bio-solids access points, and exits to reduce or eliminate off site tracking; sweeping of sand or salt storage areas to minimize entrainment in storm water runoff; collection, removal, and proper disposal of waste oils and other fluids resulting from vehicle and equipment maintenance; other equivalent measures to address identified potential sources of pollution.
 - (2) *Preventive Maintenance.* A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g., cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.
 - (3) *Spill Prevention and Response Procedures.* Areas where potential spills that can contribute pollutants to storm water discharges can occur, and their accompanying drainage points, shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion

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valves in the plan should be considered. Procedures and equipment for cleaning up spills shall be identified in the plan and made available to the appropriate personnel.

- (4) *Inspections.* In addition to the comprehensive site evaluation required under paragraph (*Part IV.C.1.c.(10)*) of this section, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility on a periodic basis. The following areas shall be included in all inspections: access roads/rail lines, equipment storage and maintenance areas (both indoor and outdoor areas); fueling; material handling areas, residual treatment, storage, and disposal areas; and wastewater treatment areas. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. The use of a checklist developed by the facility is encouraged.
- (5) *Employee Training.* Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify how often training will take place, but training should be held at least annually (once per calendar year). Employee training must, at a minimum, address the following areas when applicable to a facility: petroleum product management; process chemical management; spill prevention and control; fueling procedures; general good housekeeping practices; proper procedures for using fertilizers, herbicides and pesticides.
- (6) *Record keeping and Internal Reporting Procedures.* A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.
- (7) *Non-storm Water Discharges.*
 - (a) *Certification.* The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with *Part VII.G* of this permit.
 - (b) *Exceptions.* Except for flows from fire fighting activities, sources of non-storm water listed in *Part IV.B. (Prohibition of Non-storm Water Discharges)* of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution

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prevention measures for the non-storm water component(s) of the discharge.

- (c) *Failure to Certify.* Any facility that is unable to provide the certification required (testing for non-storm water discharges), must notify the *Director* within 180 days after the effective date of this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-storm water discharges to waters of the State, which are not, authorized by a *UPDES* permit are unlawful, and must be terminated.

- (8) *Sediment and Erosion Control.* The plan shall identify areas, which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

- (9) *Management of Runoff.* The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this permit] shall be considered when determining reasonable and appropriate measures. Appropriate measures or other equivalent measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, wet detention/retention devices and discharging storm water through the wastewater facility for treatment.

- (10) *Comprehensive Site Compliance Evaluation.* Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but in no case less than once a year. Such evaluations shall provide:
 - (a) Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.

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- (b) Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this section and pollution prevention measures and controls identified in the plan in accordance with *Part IV.C.1.c* (Measures and Controls) of this section shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than 12 weeks after the evaluation.
 - (c) A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph (b) (above) shall be made and retained as part of the storm water pollution prevention plan for at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with *Part VII.G* (Signatory Requirements) of this permit.
- (11) *Deadlines for Plan Preparation and Compliance.* The permittee shall prepare and implement a plan in compliance with the provisions of this section within 270 days of the effective date of this permit. If the permittee already has a plan, it shall be revised according to *Part IV.C.1.c.(10)*, Comprehensive Site Evaluation.
 - (12) *Keeping Plans Current.* The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to the waters of the state or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified by the plan, or in otherwise achieving the general objective of controlling pollutants in storm water discharges associated with the activities at the facility.

D. Monitoring and Reporting Requirements.

- 1. Quarterly Visual Examination of Storm Water Quality. Facilities shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. The examination must be made at least once in each of the following designated periods during daylight hours unless there is insufficient rainfall or snow melt to produce a runoff event: January through March; April through June; July through September; and October through December.
 - a. *Sample and Data Collection.* Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. The examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well lit area. No analytical tests

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are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Where practicable, the same individual should carry out the collection and examination of discharges for entire permit term.

- b. *Visual Storm Water Discharge Examination Reports.* Visual examination reports must be maintained onsite in the pollution prevention plan. The report shall include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
- c. *Representative Discharge.* When the permittee has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the observation data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area [e.g., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)] shall be provided in the plan.
- d. *Adverse Conditions.* When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic conditions, the discharger must document the reason for not performing the visual examination and retain this documentation onsite with the results of the visual examination. Adverse weather conditions, which may prohibit the collection of samples, include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).
- e. *Inactive and Unstaffed Site.* When a discharger is unable to conduct visual storm water examinations at an inactive and unstaffed site, the operator of the facility may exercise a waiver of the monitoring requirement as long as the facility remains inactive and unstaffed. The facility must maintain a certification with the pollution prevention plan stating that the site is inactive and unstaffed so that performing visual examinations during a qualifying event is not feasible.

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V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10 and 40CFR Part 503*, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- E. Additional Monitoring by the Permittee. If the permittee monitors any parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10 and 40 CFR 503* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- F. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,
 6. The results of such analyses.
- G. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location
- H. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The

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- report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 536-4123.
2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
 3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
 4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
 5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

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1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,
5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

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VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or the Act is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under *UCA 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.
- G. Bypass of Treatment Facilities.
1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.

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2. Prohibition of Bypass.

- a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *section VI.G.3.*
- b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *sections VI.G.2.a (1), (2) and (3).*

3. Notice.

- a. *Anticipated bypass.* Except as provided above in *section VI.G.2* and below in *section VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
 - (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;
 - (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,

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(6) Any additional information requested by the Director.

- b. *Emergency Bypass.* Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *section VI.G.3.a.(1) through (6)* to the extent practicable.
- c. *Unanticipated bypass.* The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part V.H, Twenty Four Hour Reporting.* The permittee shall also immediately notify the Director of the Department of Natural Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

H. Upset Conditions.

- 1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.
- 2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,
 - d. The permittee complied with any remedial measures required under *Part VI.D, Duty to Mitigate.*
- 3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

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VII. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
 - 1. All permit applications shall be signed by either a principal executive officer or ranking elected official.
 - 2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,

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- b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.
3. Changes to authorization. If an authorization under *paragraph VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *paragraph VII.G.2* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:
- "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
- H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the

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application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state of federal regulations.

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Q. Toxicity Limitation - Reopener Provision. Use the following paragraph if WET testing is required at the facility:

This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;

1. Toxicity is detected, as per *Part I.C.4.a* of this permit, during the duration of this permit.
2. The TRE results indicate that the toxicant(s) represent pollutant(s) or pollutant parameter(s) that may be controlled with specific numerical limits, and the Director concludes that numerical controls are appropriate.
3. Following the implementation of numerical control(s) of toxicant(s), the Director agrees that a modified biomonitoring protocol is necessary to compensate for those toxicants that are controlled numerically.
4. The TRE reveals other unique conditions or characteristics, which in the opinion of the permit issuing authority justify the incorporation of unanticipated special conditions in the permit.

Use the following paragraph if there is no WET testing is required at the facility:

This permit may be reopened and modified (following proper administrative procedures) to include WET testing, a WET limitation, a compliance schedule, a compliance date, additional or modified numerical limitations, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit.

R. Storm Water-Reopener Provision. At any time during the duration (life) of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "waters-of-State".

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VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
6. "Chronic toxicity" occurs when the IC₂₅< XX% effluent. The XX% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.
7. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.
8. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;

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- b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every “X” gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
9. “CWA,” means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
10. “Daily Maximum” (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
11. “EPA,” means the United States Environmental Protection Agency.
12. “Director,” means Director of the Division of Water Quality.
13. A “grab” sample, for monitoring requirements, is defined as a single “dip and take” sample collected at a representative point in the discharge stream.
14. An “instantaneous” measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
15. “Severe Property Damage,” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
16. “Upset,” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- B. Biosolids.
- 1. “Biosolids,” means any material or material derived from sewage solids that have been biologically treated.
 - 2. “Dry Weight-Basis,” means 100 percent solids (i.e. zero percent moisture).
 - 3. “Land Application” is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into the land so that the biosolids can either condition the soil or fertilize crops or vegetation

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- grown in the soil. Land application includes distribution and marketing (i.e. the selling or giving away of the biosolids).
4. "Pathogen," means an organism that is capable of producing an infection or disease in a susceptible host.
 5. "Pollutant" for the purposes of this permit is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organisms that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food-chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.
 6. "Runoff" is rainwater, leachate, or other liquid that drains over any part of a land surface and runs off the land surface.
 7. "Similar Container" is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.
 8. "Total Solids" are the materials in the biosolids that remain as a residue if the biosolids are dried at 103° or 105° Celsius.
 9. "Treatment Works" are either Federally owned, publicly owned, or privately owned devices or systems used to treat (including recycling and reclamation) either domestic sewage or a combination of domestic sewage and industrial waste or liquid manure.
 10. "Vector Attraction" is the characteristic of biosolids that attracts rodents, flies mosquito's or other organisms capable of transporting infectious agents.
 11. "Animals" for the purpose of this permit are domestic livestock.
 12. "Annual Whole Sludge Application Rate" is the amount of sewage sludge (dry-weight basis) that can be applied to a unit area of land during a cropping cycle.
 13. "Agronomic Rate" is the whole sludge application rate (dry-weight basis) designed to: (1) provide the amount of nitrogen needed by the crop or vegetation grown on the land; and (2) minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.
 14. "Annual Pollutant Loading Rate" is the maximum amount of a pollutant (dry-weight basis) that can be applied to a unit area of land during a 365-day period.
 15. "Application Site or Land Application Site" means all contiguous areas of a users' property intended for sludge application.

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16. “Cumulative Pollutant Loading Rate” is the maximum amount of an inorganic pollutant (dry-weight basis) that can be applied to a unit area of land.
17. “Grit and Screenings” are sand, gravel, cinders, other materials with a high specific gravity and relatively large materials such as rags generated during preliminary treatment of domestic sewage at a treatment works and shall be disposed of according to *40 CFR 258*.
18. “High Potential for Public Contact Site” is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
19. “Low Potential for Public Contact Site” is the land with a low potential for contact by the public. This includes, but is not limited to, farms, ranches, reclamation areas, and other lands which are private lands, restricted public lands, or lands which are not generally accessible to or used by the public.
20. “Monthly Average” is the arithmetic mean of all measurements taken during the month.
21. “Volatile Solids” is the amount of the total solids in sewage sludge lost when the sludge is combusted at 550 degrees Celsius for 15-20 minutes in the presence of excess air.

C. Storm Water.

1. “Best Management Practices” (“BMPs”) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
2. “Coal pile runoff” means the rainfall runoff from or through any coal storage pile.
3. “Co-located industrial activity” means when a facility has industrial activities being conducted onsite that are described under more than one of the coverage sections of *Appendix I* in the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity. Facilities with co-located industrial activities shall comply with all applicable monitoring and pollution prevention plan requirements of each section in which a co-located industrial activity is described.
4. “Commercial Treatment and Disposal Facilities” means facilities that receive, on a commercial basis, any produced hazardous waste (not their own) and treat or dispose of those wastes as a service to the generators. Such facilities treating and/or disposing exclusively residential hazardous wastes are not included in this definition.
5. “Landfill” means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

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6. “Land application unit” means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.
7. “Municipal separate storm sewer system” (large and/or medium) means all municipal separate storm sewers that are either:
 - a. Located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (at the issuance date of this permit, Salt Lake City is the only city in Utah that falls in this category); or
 - b. Located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (at the issuance date of this permit Salt Lake County is the only county that falls in this category); or
 - c. Owned or operated by a municipality other than those described in paragraph *a.* or *b.* (above) and that are designated by the *Director* as part of the large or medium municipal separate storm sewer system.
8. “NOI” means “notice of intent”, it is an application form that is used to obtain coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
9. “NOT” means “notice of termination”, it is a form used to terminate coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
10. “Point source” means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
11. “Section 313 water priority chemical” means a chemical or chemical categories that:
 - a. Are listed at *40 CFR 372.65* pursuant to *Section 313* of the *Emergency Planning and Community Right-to-Know Act (EPCRA)* (also known as *Title III of the Superfund Amendments and Reauthorization Act (SARA)* of 1986);
 - b. Are present at or above threshold levels at a facility subject to *EPCRA Section 313* reporting requirements; and
 - c. Meet at least one of the following criteria:

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- (1) Are listed in *Appendix D* of *40 CFR Part 122* on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table V (certain toxic pollutants and hazardous substances);
 - (2) Are listed as a hazardous substance pursuant to *Section 311(b)(2)(A)* of the *CWA* at *40 CFR 116.4*; or
 - (3) Are pollutants for which EPA has published acute or chronic water quality criteria. See *Appendix III* of this permit. This appendix was revised based on final rulemaking EPA published in the *Federal Register* November 30, 1994.
12. “Significant materials” includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under *Section 101(14)* of *CERCLA*; any chemical the facility is required to report pursuant to *EPCRA Section 313*; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.
13. “Significant spills” includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under *Section 311 of the Clean Water Act* (see *40 CFR 110.10* and *CFR 117.21*) or *Section 102 of CERCLA* (see *40 CFR 302.4*).
14. “Storm water” means storm water runoff, snowmelt runoff, and surface runoff and drainage.
15. “SWDMR” means “storm water discharge monitoring report”, a report of the results of storm water monitoring required by the permit. The Division of Water Quality provides the storm water discharge monitoring report form.
16. “Storm water associated with industrial activity” (*UAC R317-8-3.8(6)(c) & (d)*) means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the *UPDES* program. For the categories of industries identified in paragraphs *(a)* through *(j)* of this definition, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined in *40 CFR Part 401*); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in paragraph *(k)* of this definition, the term includes only storm water discharges from all areas (except access roads and rail lines) listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are

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exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State, or municipally owned or operated that meet the description of the facilities listed in paragraphs (a) to (k) of this definition) include those facilities designated under *UAC R317-8-3.8(1)(a)5*. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

- a. Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under *40 CFR Subchapter N* (except facilities with toxic pollutant effluent standards that are exempted under category (k) of this definition);
- b. Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285), 29, 311, 32 (except 323), 33, 3441, 373;
- c. Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under *40 CFR 434.11(l)* because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations that have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but that have an identifiable owner/operator;
- d. Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;
- e. Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under *Subtitle D* of RCRA;
- f. Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;
- g. Steam electric power generating facilities, including coal handling sites;

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- h. Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45 and 5171 that have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or that are otherwise identified under paragraphs (a) to (g) or (l) to (k) of this subsection are associated with industrial activity;
 - i. Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under *40 CFR Part 403*. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and that are not physically located in the confines of the facility, or areas that are in compliance with *40 CFR Part 503*;
 - j. Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than 1 acre of total land area that are not part of a larger common plan of development or sale;
 - k. Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25, (and that are not otherwise included within categories (a) to (j))
17. "Waste pile" means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.