OC SAN

ORANGE COUNTY SANITATION DISTRICT

BIOSOLIDS CONTRACTOR REQUIREMENTS

DECEMBER 2021

www.ocsan.gov/bcr

OC SAN Biosolids Contractor Requirements (BCR)

Purpose of OC San's BCR

This document (included as an appendix to OC San's biosolids contracts' Scopes of Work) is a one-stop-shop for everything a Biosolids Contractor needs to know about OC San's biosolids management program requirements for hauling and managing OC San biosolids.

Contractor submittals include the Biosolids Management Plan and Biosolids Hauling Plan that the Contractor must update, submit for OC San approval, maintain, and re-submit as needed or as requested by OC San. In addition, Contractors utilize an online Biosolids Tracking System to verify load information and destination and submit monthly reports. OC San also uses a "biosolids management system" to administer our biosolids program. This systematic approach uses issue documentation, root causes, corrective and preventive actions, effectiveness reviews, and extensive procedural documentation to ensure succession management.

OC San periodically updates this BCR document. The current version of this document is maintained on our website: www.ocsan.gov/bcr.

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C. Pre-Loading Information

1. **New Driver and Trailer Approval Forms** – Hauling Contractor is required to e-mail OC San a registration form for each driver and each trailer prior to arrival at OC San. Contractor shall submit the **Training Checklist** (Section I.A.2) to demonstrate the training was completed with pertinent personnel.
2. **Safety Equipment Requirements** – Hauling Contractor is required to comply with these requirements. Contractor shall submit the **Training Checklist** (Section I.A.2) to demonstrate the training was completed with pertinent personnel.
    - Failure to meet requirements may result in denial of loads until all findings are resolved.
    - Trailers are inspected by OC San Operators and can be turned away for violations of above specifications or those contained in the Guidelines below.
    - Trailers are subject to inspection by OC San prior to commencement of work. Any exceptions to these requirements must be requested in writing and approved by OC San staff.
    - Contractor must cooperate with all periodic inspections and audits by OC San, or local, state, and federal regulators.
3. **Pre-Loading Inspection Requirements** – Hauling Contractor is required to comply with these requirements. Contractor shall submit the **Training Checklist** (Section I.A.2) to demonstrate the training was completed with pertinent personnel.
    - Failure to meet requirements may result in denial of loads until all findings are resolved.
    - Trailers are inspected by OC San Operators and can be turned away for violations of above specifications or those contained in the Guidelines below.
    - Trailers are subject to inspection by OC San prior to commencement of work. Any exceptions to these requirements must be requested in writing and approved by OC San staff.
    - Contractor must cooperate with all periodic inspections and audits by OC San, or local, state, and federal regulators.

CI. Emergency & Planning

1. **Hauling Biosolids Information Cards** (including OC San Emergency Response guidelines) – OC San provides these laminated critical information cards to the Contractor's Dispatcher for training and drivers when they arrive at truck loading scale out facility. OC San requires these cards to be present in all trucks and presented to emergency responders in case of an incident. Contractor shall submit the **Training Checklist** (Section I.A.2) to demonstrate the training was completed with pertinent personnel.
2. **Biosolids Incident Response & Release Recovery Plan (BRRP)** – Contractor shall make immediate notifications to OC San upon awareness of a biosolids release (spill) at 714.593.7025 and take immediate action to recover biosolids and clean the area. No biosolids nor wash water (sweeping preferred) shall enter a storm drain or waterway. Contractor shall submit the **Training Checklist** (Section I.A.2) to demonstrate the training was completed with pertinent personnel.

PART II: Biosolids Management Contractor Requirements

A. Management Requirements

1. **Contractor Biosolids Management Plan Requirements** – Contractor shall and submit required Plan with proposal. Contractor shall periodically review, update, and re-submit to OC San when significant changes occur that impact the accuracy of the Plan.
2. **CWEA – Manual of Good Practice Biosolids Manager Checklists** – Contractor is required to comply with these requirements. These are excerpts of the Manual. The full Manual is included in III.A.3.
3. **Contractor Report Requirements Checklist** – Various reporting is required for Contractors to submit to OC San. These reports are especially important to prevent discrepancies on the annual reports, and to ensure errors are found in advance of the annual reports.
4. **Biosolids Contractor Requirements for Communications with OC San** – Reviews various expectations and information that Contractor is required to communicate to OC San.
5. **OC San Biosolids Tracking System (BTS) Log-on page** – OC San will provide the Contractor with access to the online BTS. OC San requires that all biosolids load tickets (total tonnage and final destination) are verified through this system to ensure accurate compliance and billing. Contractor is required to validate all tickets in BTS and resolve any discrepancies before invoicing OC San.
6. **Annual 40 CFR 503 Compliance Reports** – Contractor shall submit annual biosolids compliance data as requested for OC San's annual biosolids compliance report and shall conform to reporting formats specified by OC San including electronic reporting in January in order for OC San to submit timely reports by February 19th deadline.
    - OC San template electronic data spreadsheet provided to contractors annually. Example included.
    - OC San's Annual Reports are posted annually to www.ocsan.gov/503. Example included.

B. Resources

1. **OC San Biosolids Tracking System (BTS) and Help Manual** – OC San requires that all biosolids load tickets (total tonnage and final destination) are verified through this system to ensure accurate compliance and billing. Contractor is required to validate all tickets in BTS and resolve any discrepancies before invoicing OC San.
2. **Site Inspections** – OC San performs periodic inspections of Contractor facilities. Contractors are required to respond to inspection findings with root cause and preventive and corrective actions in accordance with timeframes on Inspection Template. Inspection forms are subject to change as part of continuous improvement.
    i. Example Inspection form: Aerated Static Pile and Windrow Composting

PART III: OC San's Biosolids Program and Contractor Oversight

A. Governing Policies and Guiding Documents

1. **OC San Biosolids Policy Resolution** – Contractor shall be aware that OC San has a Biosolids Policy adopted by the Board that can have implications for Contractors. Example excerpts from the Policy are below.

   - "Whereas, in order to promote a standard of excellence, the District maintains a Biosolids Management System and adheres to the principles of the National Biosolids Partnership's Code of Good Practice and best management practices of the California Water Environment Association's (CWEA) Manual of Good Practice for Agricultural Land Application of Biosolids."
   - Now, therefore, the Board of Directors of Orange County Sanitation District, does hereby resolve, determine, and order: 1.) The District is committed to a sustainable biosolids program. 2.) The District is committed to diversifying its portfolio of offsite biosolids management options with multiple biosolids contractors, markets, facilities, and maintaining fail-safe back-up capacity at least 100% of its daily biosolids production. 3.) The District declares its support of recycling biosolids. 4.) The District strives to balance financial, environmental, and societal considerations when making biosolids decisions. 5.) The District is committed to utilize a biosolids management system to maintain a sustainable and publicly supported biosolids program. 6.) The District is committed to researching and implementing ways to reduce the volume of biosolids at the treatment plants to minimize the need for offsite management. 7.) The District declares its support of continuing to research biosolids benefits and potential safety concerns. 8.) The District demonstrates the benefits of biosolids compost by using it at the District's facilities. Passed and adopted at a regular meeting of the Board of Directors held on the day of February 27, 2013.

2. **National Biosolids Partnership Code of Good Practice** – Per OC San's 2013 Biosolids Resolution above, OC San adheres to the principles of the National Biosolids Partnership's Code of Good Practice. Many of these practices extend out to Contractors, and therefore Contractors need to be aware of and adhere to the Code.

3. **CWEA Manual of Good Practice** – Per OC San's 2013 Biosolids Resolution above, OC San adheres to the principles of the best management practices of the CWEA Manual of Good Practice for Agricultural Land Application of Biosolids. Despite the focus on land application, this manual is well-written with many concepts and best practices applicable to transportation, training, management plans, public relations, etc. for the benefit of all Contactors involved with biosolids. A simplified checklist is included above, and this item is the entire document for reference.

4. **Ten Tenets of OC San's Biosolids Management Plan** – Confirmed as part of the 2017 Biosolids Master Plan, these tenets support OC San's biosolids policy by minimizing risk the Biosolids Management Plan through diversity of management options and markets, failsafe redundancy, and monitoring emerging and developing necessary markets.

5. **Biosolids Regulatory Requirements** – This extensive and detailed table lists each of OC San's biosolids regulatory requirements (e.g. NPDES ocean discharge permit, EPA's 40CFR503, Arizona land application requirements). By searching for key words such as "BCR," "inspect" and "contract," Contractors can understand how OC San addresses each requirement and their connection to the system.

B. Contractor Oversight

1. **OC San Biosolids Distribution Map** – Current distribution is included. Updates are posted to www.ocsan.gov/map.

2. **Contractor Oversight Flow Chart** – The key information and methods by which OC San ensures effective oversight of Contractors.

C. OC San Reports for Contractors

1. **Monthly Compliance Report aka "Notice and Necessary Information"** – Within 75 days of the end of the month, OC San emails the signed and certified report as verification of meeting regulatory Class B standards for each plant. These reports are posted online at www.ocsan.gov/nani. By February 19th each year, OC San uploads this data to the EPA's online database and compiles it into OC San's Annual Biosolids Report (www.ocsan.gov/503).
2. **Laboratory Reports** – OC San's contract-laboratory reports for all biosolids sampling are available upon request.

CI. Periodic Updates and Communications

1. **Biosolids Internet Webpage** – References, data, and periodic articles are posted about OC San's Biosolids Program on www.ocsan.gov/biosolids.

I.A.1. Biosolids Hauling Plan Template

Contractor Biosolids Management Plan Requirements – Hauling Plan

Note to Contractor: This document is an **example** template Biosolids Hauling Plan. It is the Contractors responsibility to:

- Document compliance with all regulations including anything beyond this example template.
- Review and update all language to ensure it is accurate and reflective of the Contractor's operations or submit an equivalent document.
- Ensure all key elements are addressed.
- Update areas in RED FONT.
- Maintain the Hauling Plan and submit changes and updates to OC San with the monthly report.
- Ensure that all key elements are integrated into the Contractor's management system, and are subject to OC San inspections and audits.
- Ensure that staff are appropriately trained.

The Contractor's version can cross-reference other existing documents if they are submitted to OC San as appendices or under separate cover.

BIOSOLIDS HAULING PLAN

Name of Contractor	**Path:** Location where file resides
Subject: Biosolids Hauling Plan	**Effective Date:** Date it will become effective
Approved by: Name of Contractor Personnel Responsible for Plan	**Supersedes Date:** Effective date of previous document

I. Introduction

Name of new Contractor hauls biosolids to biosolids management facilities as directed by OC San. This Biosolids Hauling Plan has been written to document the procedures Name follows for the transportation in accordance with federal, state, and local regulations.

II. Contractor Contact Information

	Primary	Mobile	E-mail
Owner			
Dispatcher			
Office / Billing			
Other			

III. Permits

Name of Contractor and its sub-contract haulers are permitted as a motor vehicle contract carrier by the following regulatory agencies:

- Interstate Commerce Commission
- California Public Utilities Commission
- Attachment A includes copies of Name of Contractor's permits needed for hauling OC San biosolids in California.

IV. Routes

For loads picked up at OC San to be taken to [Destination], Name of Contractor and its sub-contract haulers intend to use the following primary route(s) (see map(s) below).

- The Primary Route for OC San Plant No. 1 (Fountain Valley) is taking 405(N/S) to 5N/91E to …
- The Primary Route for OC San Plant No. 2 (Huntington Beach) is taking Brookhurst St. to Victoria Street east to the 55N to 405(N/S) to 5N/91E to … Alternatively, trucks can take Brookhurst St. north to 405(N/S) to 5N/91E to …

Alternative routes include:

- Route 14 is an alternative around the Grapevine.
- If Cajon Pass is closed due to winds, fire, accidents, etc. then trucks can take …

Name of Contractor has identified the following sensitive receptors that this route will drive by:

- Example: School on Main Street in session starting at 8am and ending at 3pm, Mon – Friday. Name of Contractor's trucks will avoid this area at these times. The school cannot be avoided since it is on the main hauling route just south of the entrance to the facility.

V. Truck Maintenance, Appearance, and Recordkeeping

a. All trucks and trailers are properly maintained to provide a safe transport of biosolids with a Preventive Maintenance program that is available to review upon request.
b. Covered truck trailers are used to haul biosolids, or other vehicle that is leak proof.
c. All necessary measures are taken to keep biosolids contained.
d. The mechanical maintenance schedule of truck tractors follows the manufacturer's recommendations and the records are kept in the Name of Contractor and location of office.
e. The structural integrity of truck trailers is also tested by Contractor daily visual inspection and repaired accordingly to avoid accidents and biosolids releases. This includes the installation and maintenance of adequately working safety pins on trailer gates as well as the maintenance of tarps and tarp mechanisms.
f. All repairs are logged and the records are kept in the Name of Contractor and location of office.
g. All truck maintenance records are made available upon request.

VI. Driver Training

a. Name of Contractor truck drivers receive training on an (frequency) basis on topics including but not limited to the following:
    - OC San's "Hauling Biosolids" information cards including Emergency Response procedures
    - OC San's "Safety Equipment Requirements"
    - OC San's "Pre-Loading Inspection Requirements."
    - Nature of load, and biosolids characteristics.
    - Loading and procedures at wastewater treatment plants
    - Safety and biosolids
    - Do's and don'ts of biosolids transportation
    - Inclement weather driving and preparations
    - Emergency preparedness

- Biosolids release prevention and release cleanup procedure – Must carry a copy of an approved biosolids response plan.
- Unloading and cleaning procedure
- Recordkeeping
- Public relations

b. The records of this training are kept in the Name of Contractor and location of office and are made available upon request.
c. All training is documented and includes employee names and signature, date of training, training topic, and trainer's name.
d. OC San requires that the Contractor perform training on several topics, including proper forms and response and recovery procedures before the contract begins.
e. OC San's New Driver Approval Forms require dispatchers and drivers to acknowledge:
   i. OC San onsite PPE-requirements
   ii. Trucks and trailers must meet OC San requirements or loads may be denied without make-ups.
   iii. Training on OC San protocols listed above.
f. OC San's New Trailer Approval Forms require dispatchers to acknowledge trailers comply with all OC San requirements. Again, not meeting OC San requirements may result in denial of load without make-ups.

VII. Unloading and Washing

a. In accordance with OC San contract terms, trailers have less than 150 pounds of internal residual biosolids.
b. Include information regarding if and how the interior of the trailer is cleaned.
c. Exterior biosolids are cleaned off before leaving any facility.
d. Before leaving, the trailer is tarped.

VIII. Biosolids Response and Recovery

To protect the environment and the public in case a biosolids release occurs, name of Contractor agrees to follow OC San's Biosolids Response and Recovery Plan.

[**OPTIONAL**] In addition, Name of Contractor has a Biosolids Response and Recovery Plan (Attachment B) that includes:

- xxxxxx

IX. Communications with OC San - OC San's BCR document: Communication Requirements for OC San's Biosolids Contractors.

X. Attachments (if needed)

TEMPLATE

OCSD Biosolids Contractor

BIOSOLIDS RELEASE & RECOVERY REPORT

Notification Date/Time: DAY AND TIME **Incident Date/Time:** DAY AND TIME

Person Reporting Problem: DISPATCHER OR DRIVER NAME **Phone:** PHONE

Incident Location: ADDRESS

City: ADDRESS, CA ZIP **County:** COUNTY

Responding Parties: Contractor, CHP, CalTrans

Clean-up Complete Date/Time: XX/6/XX 1:00 pm

Type of Release: Biosolids **Injuries?** None

Problem Description: **Other Vehicles Involved?** None

Biosolids: (The nutrient-rich, treated organic matter recovered through the treatment of wastewater. Solids in wastewater (sewage sludge) are settled through the treatment process and treated (digested) to minimize pathogens (germs that cause disease) and odors. These digested solids are called biosolids.

Company driver, xxx, was driving to XXX facility to drop off OCSD's biosolids on XXX Freeway when …..

Full Timeline and details of incident and response and clean-up.

…..

See pictures below.

Potential Impacts:

The biosolids stayed on pavement and on the side of the road. Biosolids are viscous (not runny) and stayed in place where they were fully recovered. There were no storm drains near the incident location, so there was no potential to flow to a storm drain nor threaten water ways.

The biosolids volume was estimated to be **approximately X tons,** and company hauled out **Y tons of biosolids and dirt.**

The CHP / CalTrans reopened the road within **X hours** of the incident.

Corrective Actions:

- Company recovered all biosolids and biosolids-fortified soil and recycled _____.

Preventive Actions:

- Training with dispatchers on immediate notification of OCSD is being scheduled.

Waterway Impacted: No **Rain?** No **Traffic Impacted:** X-hour road closure

Cause of Release: ALL CONTRIBUTING FACTORS

Internal Staff Notified:

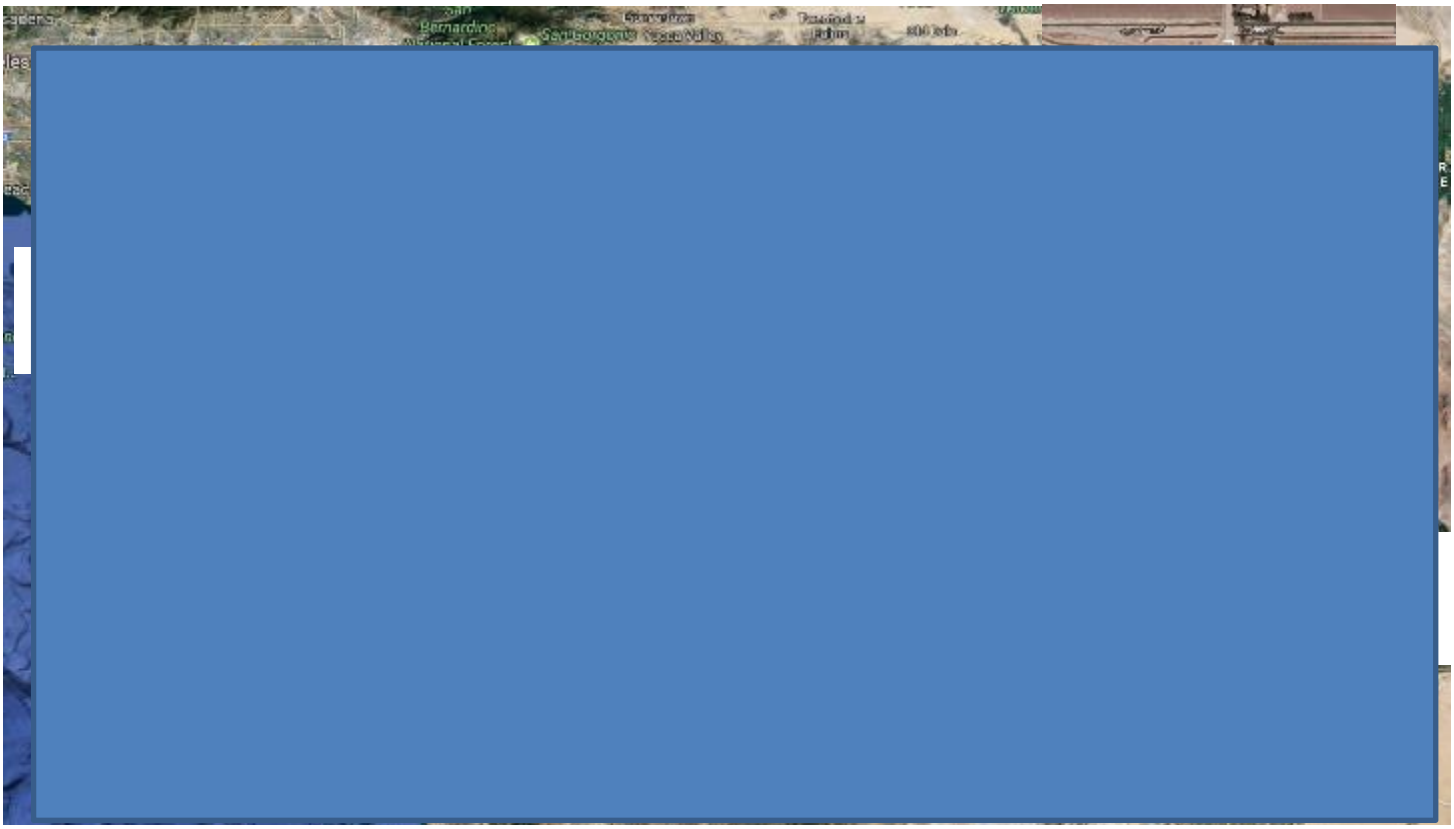
Regulatory Contacted: **CHP Contacted By:** Company – TIME

Pictures 5-6- Clean Up

OCSD Biosolids Contractor

BIOSOLIDS RELEASE & RECOVERY REPORT

Pictures: Picture 1- Approximate location of the release, relative to OCSD and truck's final destination.



Pictures 2-4- Initial Incident

Pictures 5-6- Clean Up

I.A.2. Training Checklist

A.2. TRAINING CHECKLIST

Employee Name	B1. OC San Hauler Rules and Key Compliance Requirements Employee Initials & Date Trained	B2. CWEA – Manual of Good Practice Checklist Employee Initials & Date Trained	C1. Driver and Trailer Approval Forms Employee Initials & Date Trained	C2. OC San Safety Equipment Inspection Guidelines Employee Initials & Date Trained	C3. Pre-Loading Inspection Requirements Employee Initials & Date Trained	D1. Hauling Biosolids Information Cards Employee Initials & Date Trained	D2. Biosolids Response & Recovery Plan (BRRP) Employee Initials & Date Trained
Trainer:							
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2							
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I.B.1. OC San Hauler Rules and Key Compliance Requirements

ORANGE COUNTY SANITATION DISTRICT
Memorandum

DATE: October 1, 2020

TO: All Biosolids Contractors

FROM: Cindy Vellucci
Senior Environmental Specialist
Liaison to Contractors and Operations

SUBJECT: Updated OC SAN Hauler Rules and Key Compliance Requirements

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A. Truck Loading Hours, Contacts, and Courtesies (subject to change with prior notice)

OC SAN Reclamation Plant No. 1	OC SAN Treatment Plant No. 2
24-Hour Contact Control Center: (714) 593-7025 • Call for all **EMERGENCIES** including biosolids releases and P1 missed loads	24-Hour Operations Center: (714) 593-7625 • Call for P2 missed loads
Truck Loading Hours (both plants) ***Monday – Friday: 7 am to 2 pm*** ***Saturday: 7 am to 12 noon*** Normally closed Sundays and some major holidays. *Hours are subject to change based on maintenance needs (shutdowns), construction, and other operational considerations.*	
As a courtesy practice at Plant No. 1 to alleviate some traffic, plant gates are opened for drivers starting at **5am**. Drivers are allowed wait in their vehicles until the loading window opens. To take advantage of this courtesy, the **driver must:** • NOT arrive before 5am, nor park in adjacent neighborhoods and businesses. • Turn off all engines • Stay with his/her truck at all times	A courtesy practice at Plant No. 2 to allow drivers to arrive at night or in early in the morning to wait in their vehicles until the loading window opens. To take advantage of this courtesy, the **driver must:** • Turn off all engines • Stay with his/her truck at all times • Park in line leading to Truck Loading facility. • Leave tarp on until next to load

• Park in line leading to Truck Loading facility. • Leave tarp on until next to load	

B. Basic Loading Rules

- Drivers must check their vehicle's seals, flaps, pins, and tarps prior to loading to ensure they are all in working order.
- Drivers must legibly sign-in on truck loading log and sign their ticket.
  - Drivers must ***verify the information on their ticket*** *(e.g., name) is accurate before they leave* and have loading Operator re-issue ticket if it is not accurate.
- Drivers must stay in their truck at all times during loading.
- Weight loading limits at both plants is a **maximum of 79,500 pounds** (or less, per driver/dispatcher request) as a safety precaution.
- Driver must check their vehicles after loading for leaks.

C. Delayed/Cancelled Trucks Guidelines

- Dispatchers ***must call*** the On-Duty Operations Supervisor at plant phone number above ***before*** they miss a scheduled load and in order to schedule a make-up.
- ***No make-ups are*** guaranteed, however, OC San's staff will work with the dispatcher as much as possible while still meeting OC San's operational needs (solids availability).
- If a dispatcher does not call before the load is missed, OC San can reallocate the load in order to meet operational demands.

D. Biosolids Releases

IMMEDIATELY report to Control Center (714) 593-7025

Control Center is OC San's command center and is staffed 24 hours/day, 7 days/week. They will contact other OC San staff and properly document the response. For releases outside OC San's service area, contractors may call the contacts below for reporting.

E. Other Contact Information

Primary Contact for General Contractor Issues: Cindy Vellucci
(714) 593-7156, Cell: 714-366-0573, cvellucci@ocsan.gov

Secondary Contact for General Contractor Issues: Deirdre Bingman
(714) 593-7459, Cell: 714-655-1547 dbingman@ocsan.gov

F. Hauling Regulations

OC San's biosolids contracts require contractors to comply with ALL federal, state and local regulations, as well as contractual requirements. ***Any contractor or subcontractor violating regulations or requirements, including but not limited to DOT hauling hours and insurance requirements, may cause OC San to cease or reduce loads until Contractor is in compliance. Failure to obtain compliance during the time specified by OC San may result in termination of Contract.***

G. OC San's Ocean Discharge NPDES Permit Biosolids Compliance Requirements

The following items are specifically contained in OC San's Ocean Discharge permit, and ***are compliance requirements***. More detailed compliance requirements are available in the "Legal Requirements Table" of the Biosolids Contractor Requirements document (www.ocsan.gov/bcr).

- The Discharger shall assure that haulers transporting biosolids off-site for treatment, storage, use, or disposal take ***all necessary measures to keep the biosolids contained.***
- **Trucks** hauling biosolids that are not Class A, as defined at 40 CFR 503.32(a), **shall be cleaned as** necessary **after loading and after unloading, so as to have no biosolids on the exterior of the truck or wheels.**
- **Trucks hauling** biosolids that are not Class A **shall be tarped**.
- **All haulers must have** spill **clean-up procedures.**
- **Trucks** hauling biosolids that are not Class A ***shall not be used for hauling food or feed crops after unloading the biosolids*** unless the Discharger submits a hauling description, to be approved by USEPA, describing how trucks will be thoroughly cleaned prior to adding food or feed.
- Duty to Mitigate: The Discharger shall take all reasonable steps to prevent or minimize any biosolids use or disposal, which has a likelihood of adversely affecting human health or the environment.
- No biosolids shall be allowed to enter wetlands or other waters of the United States.
- Biosolids treatment, storage, use, or disposal shall not contaminate groundwater.
- Biosolids treatment, storage, use, or disposal **shall not** create a nuisance such as objectionable odors or flies.
- Any biosolids treatment, disposal, or storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect the site boundaries from erosion, and to prevent any conditions that would cause drainage from the materials to escape from the site. Adequate protection is defined as protection from at least a 100-year storm and the highest tidal stage, which may occur.
- The Discharger shall notify USEPA and the State (for both Discharger and use or disposal site) of any non-compliance within 24 hours, if the non-compliance may seriously endanger health or the environment. For other instances of non-compliance, the Discharger shall notify USEPA and the State of the non-compliance in writing within 5 working days of becoming aware of the non-compliance. The Discharger shall require their biosolids management contractors to notify USEPA and the State of any non-compliance within these same time-frames.

I.B.2. CWEA – Manual of Good Practice Hauler Checklist

Table 3-1
GOOD MANAGEMENT PRACTICES CHECKLIST
TRANSPORTER

	PROGRAM MANAGEMENT	
1.	Prepare a written Transportation Management Plan.	
2.	Hire and train qualified drivers.	
3.	Maintain vehicles and trailers in a safe operating condition.	
	OPERATIONS	
4.	Operate vehicle safely and drive courteously at all times.	
5.	Follow proper loading, tarping, and sealing procedures.	
6.	Minimize nuisance potential during transport.	
7.	Keep ignition sources away from/do not physically enter tarped trailer loads of biosolids.	
8.	Carry proper biosolids documentation at all times.	
9.	Clean biosolids and mud from vehicle before entering public roads.	
10.	Unload biosolids only in designated areas at land application sites.	
11.	Practice appropriate health safeguards	

III. GOOD MANAGEMENT PRACTICES DISCUSSION

This section provides an explanation of the management practices listed in Table 3-1. For each management practice, the purpose of the practice is discussed along with guidance for implementing the practice. Supplemental materials referenced in the text are included in the appendices.

1. Prepare a written Transportation Management Plan.

Purpose: A formal Transportation Management Plan (Plan) is crucial in order to safely and efficiently transport biosolids on public roads and to respond to emergency situations. The transport component of the Plan depends on the employment of qualified and knowledgeable drivers (Transporter GMP-2), the use of appropriate equipment (Transporter GMP-3), and the selection of primary and alternate routes.

The contingency component of the Plan addresses what to do in an emergency. Emergencies can include accidents, roadway spills, vehicular breakdowns, road closures, and other events resulting under normal circumstances or as a result of acts of nature. Safety should be the primary consideration in all emergency situations. After attending to all safety issues and cooperating with all law enforcement and emergency response personnel, the goal is to transport the biosolids to their final destination in order to avoid nuisance conditions (odors, vectors, etc.), especially in warmer weather.

Implementation: The Transporter should determine both primary and alternate routes before the first load of biosolids is transported from the Generator's facility. Routes should be selected to minimize impact on local roadways and communities. It should be remembered during the route planning phase that the most direct and quickest route may not always be the route having the least impacts on the public. Times of travel should be selected to avoid heavy traffic congestion by coordinating with the Generator and scheduling, when possible, hauling times which avoid peak rush hour traffic. This will assist in minimizing odor nuisances to the communities through which the transport vehicles are passing and increase the chances of having a safe trip. Additionally, routes subject to frequent closures due to inclement weather should be avoided. The

I.C.1. New Driver and Trailer Approval Forms

Orange County Sanitation District
New Driver Approval Form

All new drivers hauling for OC San must be *pre-approved* by a **Dispatcher** or his/her designee. *Drivers missing an approved form and confirmation may not be loaded.* At least ***TWO (2) business*** days before sending new driver to OC San, scan or take a photo of this form and email it to Cindy Vellucci, cvellucci@ocsan.gov AND Deirdre Bingman, dbingman@ocsan.gov . OC San will confirm via email.

Date:	Contractor:	Route:
Name as it appears on Driver's License:		Name as driver will sign-in at Truck Loading:
Driver's License Number:		Driver's License Expiration Date:
Has the Driver previously hauled OC San's biosolids for a different company?	Yes / No	Previous biosolids hauling company/(ies): _____ Previous name(s) used in OC San's system if different: _____
Years of biosolids hauling experience? List previous companies.	____ Yrs	
Does the Driver have a **CB radio** communications with OC San Ops?	Yes / No	Must have one by start date.

Driver Certification Statement: *I hereby Certify the above information is correct and:*

- *I have received, reviewed, understand, and will comply with all information contained in OC San's laminated **"Hauling Biosolids" information cards**.*
- *I have received a copy of, have been trained on, understand, and will abide by "OC San Safety Equipment Requirements" and "Pre-Loading Inspection Requirements." (www.ocsan.gov/bcr)*
- *I am aware of OC San's personal protection equipment (PPE) requirements including reflective vest, long pants, steel-toed boots, hard hats, safety glasses, and [masks during pandemic] are required to be worn at all times at OC San plants when outside of my vehicle. Short sleeve shirts are acceptable, but tank tops are not.*
- *I am aware that any truck and trailer assigned to me must meet OC San requirements, and loads may be denied if requirements are not met. I will inspect all equipment assigned to me before leaving the yard and must notify the dispatcher of any equipment not meeting OC San requirements.*

Yo certifico: *Que la información anterior es correcta y:*

- *He recibido, revisado, entendido y cumpliré con toda la información de el folleto de **OC San llamado "Remolcando biosólidos".***
- *He recibido una copia, he sido capacitado, entiendo y cumpliré con los "**OC San Safety Equipment Requirements**" y los "**Pre-Loading Inspection Requirements**". (www.ocsan.gov/bcr)*
- *Soy consciente de los requisitos de el equipo de proteccion personal de OC San incluyendo un chaleco reflejante, pantalones largos, botas con punta de acero, casco, lentes de seguridad, y [máscaras durante la pandemia] deberian estar puesto en todo momento cuando salgo de mi camion en una plant.*
- *Soy consciente de que cualquier camión y remolque que se me asigne debe cumplir con los requisitos de OC San y se pueden negar cargas si no se cumplen los requisitos. Inspeccionaré todo el equipo que se me asigne antes de salir del patio y debo notificar al despachador de cualquier equipo que no cumpla con los requisitos de OC San.*

Driver Signature	Driver Name	Date

Dispatcher Certification Statement: *I hereby Approve/Certify:*

- *The above-named driver as an employee to haul material for OC San.*
- *I have provided copies to the driver and documented training on all subjects in the **three bolded documents above** and this signed form.*
- *I understand that any truck and trailer assigned to this driver must meet OC San requirements or the load may be denied without a make-up.*
- *I understand that OC San requires immediate notification of any release of OC San's biosolids en route from this trailer.*
- *If this driver/trailer is a subcontractor, please attach the submittal of insurance listing OC San as additionally insured to $5 million is required per OC San's contract.*

Dispatcher Signature	Dispatcher Name	Date

New Trailer Approval Form

All new trailers hauling for OC San **must be inspected and approved by the Dispatcher** or his/her designee. *Trailers missing an approved form and confirmation may be denied without make-up.*

Date: Contractor: Route:

Type of Trailer:

Trailer License Plate Number:	Trailer ID:	Initial Truck ID:

Verified?	*Area*	*Criteria*	*Observations*
☐	Locking Mechanisms	**End Dumps:** Option 1) - Have (2) turnbuckles on the bottom of the gate. Option 2) - Have (1) turnbuckle on the bottom and (1) on each side for a total of (3). Option 3) - 4 turnbuckles – 2 on each side.	
☐	Tarp Integrity/Seal	Tarp must completely cover and seal the truck with no major holes or rips (over 6 inches). Tarp must make a seal with the front splashguard and the back edge.	
☐	Baffles	Splashguards must be completely welded or bolted and sealed. Must be 18-24 inches on front. Back splashguards are required only if tarp does not have a tarp extension that ensures seal in the back.	
☐	Trailer Body Integrity and Seals	**Trailers MUST be water tight!** – No holes or tears on body of trailer or gate seals through which light can be seen through or where there are signs of leakage. Gate seals making a tight connection.	
☐	Truck and trailer height/clearance	Must not exceed 12' to load at Plant 1, or 13'6" to load at Plant 2.	
☐	Cleanliness	No biosolids should be present/visible on the outside of the truck or trailer. Residual biosolids inside the trailers is a concern if it creates an odor.	
☐	Odor	Should be non-odorous before loading with tarp on.	
☐	Truck Reminders	• All Trucks must have Safety equipment including broom, bucket, triangles, fire extinguisher, gloves, protective eyewear • Any changes to trucking schedule need to be called into Duty Supervisors (Plant No. 1 at 714-593-7025, Plant No. 2 at 714-593-7625).	
☐	CB Radio / Communicator	• All trucks are required to carry a CB communicator.	

Certification Statement: I hereby Certify that I have inspected the above listed trailer and requirements listed above have been met. The trailer and truck meet all OC San requirements as listed in the "OC San PRE-Loading Trailer Inspection Guidelines" available at www.ocsan.gov/bcr. *If the truck or trailer is a subcontractor, please submit insurance listing OCSAN as additionally insured to $5 million per contract requirements.*

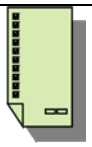
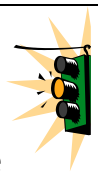
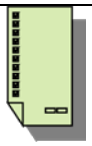
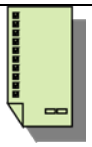
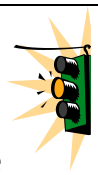
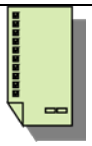
Dispatcher Signature	Dispatcher Name	Date

At least ***TWO (2) business*** days before sending the trailer to OC San, scan and email this form to Cindy Vellucci, cvellucci@ocsan.gov AND Deirdre Bingman, dbingman@ocsan.gov. OC San will confirm via email.

I.C.2. Safety Equipment Requirements

OC San Safety Equipment Inspection Guidelines

Checklist

Inspection Item	Section	Page	Summary of Requirement	Failure means Write-up and Lock –out?	Failure means MAY still Load?
Emergency Equipment	1	2	Driver must have a set of triangles and fire extinguisher readily available. Fire extinguisher gauge needle must be in the green zone.	Yes 	Maybe 
Safety Equipment	2	2	Driver must have and wear gloves when tarping, un-tarping or unloading material. Gloves must be heavy duty and readily available.	Yes 	Maybe 
Biosolids Recovery Equipment	3	3	Driver must have and wear a hard hat, safety vest and protective eyewear when tarping or untarping at Plant 1 or when unloading.	Yes 	Maybe 
Biosolids Recovery Equipment	4	3	Full size broom and shovel must be readily available	Yes 	Maybe 

Requirements

OC San performs monthly hauler inspection during which the following safety and emergency equipment will be checked.

1) *Emergency Equipment:* Driver must have a set of triangles and fire extinguisher readily available, ask to see them. Fire extinguisher gauge needle must be in the green zone. *Failure to meet this requirement results on a write up and issue must be fixed before next load can be taken.*

- Unacceptable: No triangles or fire extinguisher, fire extinguisher gauge needle not on green zone or fire extinguisher not readily available.

2) *Daily Safety Equipment:* Driver must have and wear gloves when tarping, un-tarping or unloading material. Gloves must be heavy duty and readily available. *Failure to meet this requirement results on a write up and issue must be fixed before next load can be taken.*

- Unacceptable: Missing gloves or ripped gloves.

3) *Personal Protective Equipment:* Driver must have and wear hard hat, safety vest and protective eyewear when tarping and un-tarping at Plant 1 due to construction; or when unloading material.

   During pandemics or contagion outbreaks, it is important to lower the risk and likelihood of transmission to others. A face mask is required, especially if 6 feet of physical distance cannot be maintained. See below for illustration of acceptable masks.

4) Protective eyewear may be safety glasses, sunglasses or regular prescription glasses. *Failure to meet this requirement results on a write up and issue must be fixed before next load can be taken.*



Face masks are required during contagion outbreaks such as COVID-19.

- Unacceptable: Missing any of the above.

5) Emergency Recovery Equipment: Full size broom and shovel must be readily available. Push broom and flat edge shovel are preferred. *Failure to meet this requirement results on a write up and issue must be fixed before next load can be taken.*

- Unacceptable: hand broom or hand shovel or missing either or both.

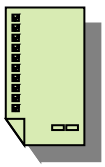
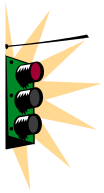
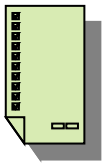
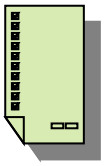
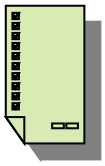
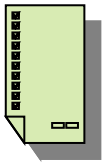
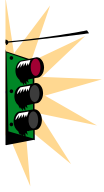
I.C.3. Pre-Loading Inspection Requirements

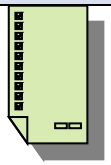
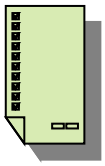
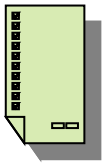
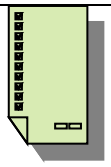
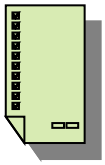
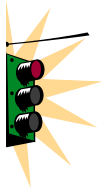
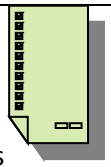
ORANGE COUNTY SANITATION DISTRICT

PRE-Loading Trailer Inspection Guidelines

Table of Contents

Checklist

PRE-Load Inspection Item	Item / Section more Details	Summary of Requirement	Failure means Write-up and Lock –out?	Failure means MAY still Load?
Truck and Trailer Height/ Clearance	1	Plant 1: 12 ft Plant 2: 13’ 6”	Yes 	 No
Trailer ID	2	Trailer must be clearly marked with unique ID. ID must be visible and distinguishable.	Yes 	Maybe 
Trailer Body Integrity and Seals	3	Trailers MUST be water tight! No holes or tears on body of trailer or seals through which light can be seen through or where there are signs of leakage.	Yes 	Maybe 
Tarp Integrity	4	Tarp must completely cover and seal the truck with no major holes or rips (over 6 inches). Holes or tears less than 6 inches are acceptable.	Yes 	Maybe 
Primary Locking Devices	5	Gates (air or hydraulic) must functioning properly, be latched and closed to load.	Yes 	 No
Fail-safe Manual Locking Devices	6	**End Dumps**: Must have 2 turnbuckles on bottom; **or** 2 on top (one on each side) and one on bottom (total of 3); **or** 2 on each side (total of 4).		Maybe 

PRE-Load Inspection Item	Item / Section more Details	Summary of Requirement	Failure means Write-up and Lock –out?	Failure means MAY still Load?
		Live Bottoms: Must have 1 turnbuckle on each side **plus** 2 pins for the sliding door, one on each side. **Doubles:** Must have safety pins in front and back of each clamshell.	Yes 	
Baffles or Splashguards	7	Must be completely welded or bolted and sealed all the way around. Must be 18-24 inches on front, doubles may have smaller splashguards.	Yes 	Maybe 
Trailer Cleanliness	8	No biosolids clumps should be present/visible on the outside of the truck or trailer. No excessive biosolids on the inside of the trailer.	Yes 	Maybe 
Odors	9	Unloaded trailers should not be odorous.	Yes 	Maybe 
Flaps (belts)	10	Flaps should make a closed seal with the back of the trailer door so no light can be seen through.	Yes 	 No
Seals	11	Cracks or holes with signs of leakage or that let light through.	Yes 	Maybe 

Procedure

- Before loading a trailer, the Operator inspects and verifies all requirements contained in this document are met by walking around the trailer.
- The Operator will write-up the trailer for all requirements not met. Write-ups help give the drivers the documentation they need to ensure the issues are repaired. Verbal warnings may not be heeded by the maintenance yard.
- The Operator will lock out (see AutoScale Manual) the trailer when the write-up is issued.
- Write-ups (fix-a-tickets) must be resolved before the trailer is unlocked. That is, the issue must be resolved before the trailer can be loaded.
- If the infraction requires the denial of a load, then the Operator will notify the Operations Solids Supervisor who will notify Compliance.
    - Compliance will notify the Hauler's Dispatcher of the load denial.
- Once the corrective action has been abated, Operations will inspect the trailer to confirm the issue is resolved and the trailer can be unlocked.

Inspections

OC San has a hauler inspection program which consists of pre-loading inspections and periodic hauler inspections.

- **Daily pre-loading inspections** consist of a quick walk through before loading to make sure the trailer continues to meet the minimum requirements to contain the load.
- **Periodic** hauler inspections are more thorough and are performed randomly with the goal of ensuring that our haulers are properly equipped and trained at all times.
- Contractor's drivers shall carry a copy of the **OC San's "Hauling Biosolids"** laminated information cards. Drivers shall understand and abide by all information contained in it, be familiar with Biosolids, and provide this informational booklet to onsite emergency responders if an incident occurs during transportation, especially to communicate that **Biosolids are non-hazardous**. Laminated cards are available to drivers at OC San's truck loading facilities.
- OC San requires the Contractor's participation in our commitment to being a good neighbor and preventing/ minimizing noise and odors.

Trailers Types

Contracts that pre-date 2021 are exempt from this section's new requirements.

- Trailers shall have tall sides (about eight feet high) so as to allow the driver to tarp the truck inside the loading facility, with the doors closed and without having to adjust the load since the biosolids may initially pile high in one area.
- Trailers shall and be equipped with tarping mechanism that allows the driver to tarp the truck inside the truck loading facility before the odor-control doors are opened. The tarping mechanism must be able to tarp the truck within the loading facilities' maximum clearance height of twelve (12) feet. Drivers will be allowed to exit

cab to turn on the tarping mechanism once the Operator signals the all clear after biosolids have completed loaded.

- Trailers shall be single trailers due to OC San's unique alignment of loading chutes at Plant No. 1 that makes unsafe to move double trailers back and forth with the odor-control doors closed.

Trailer Type	Key Features	Picture
End Dumps	Used by all vendors. Rise from the front to unload trailer.	
Live Bottoms (aka farm belts)	Used primarily by Synagro GIC, have a rolling bottom belt that is used to unload trailer. IERCF requires live-bottoms.*	
Doubles or Clam Shell *(not allowed after October 2022)*	Used exclusively by Tule Ranch. Open from the bottom to unload trailers.	

* Contractor shall use live-bottom belt trailers to transport biosolids to the IERCF. Trailers delivering biosolids to the site shall meet the following clearance specifications to off-load material into the biosolids hoppers. All live bottom belt type trailers require a minimum clear distance of 15" between the ground surface and any trailer structure beyond or past the rear tires. This requirement does not apply to any flexible structure like a mud flap. Flexible structures may be removed or re-positioned to allow adequate clearance.

Requirement Details

See Procedure and Checklist sections above for ALL issues receive write-ups, so that is not repeated in each item below.

The follow details review rationale and background on each topic.

Section 1: Truck and Trailer Height/ Clearance

Trucks and trailers, including exhaust stacks and antenna, must not exceed the specified clearance limit at each of the plants.

- Plant 1 clearance is **12 feet**
- Plant 2 clearance is **13.5 feet**

- Automatic tarping devices must also clear this height.

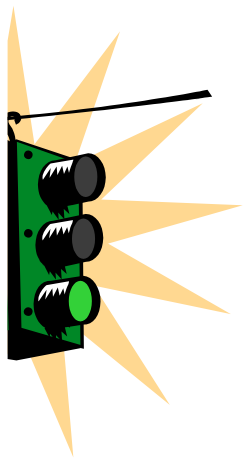
- If a trailer fails to meet Plant 1 clearance, but meets Plant 2, trailer must load exclusively at Plant 2. A note needs to be made on Autoscale by the Operator to this effect, and please notify Compliance. If the vendor decides they will want to load at Plant 1, issue must be resolved before trailer returns for future loads.

- As noted in Checklist, a one-time temporary or emergency work around is having the truck back in to loading facility if Operations deems safe.

Section 2: Trailer Identification Number

Trailer must be clearly marked with a unique identification number. The trailer identification number must be visible and distinguishable.

If this is a new trailer, notify Environmental Compliance to ensure the proper paperwork was submitted and the trailer is clear for loading.

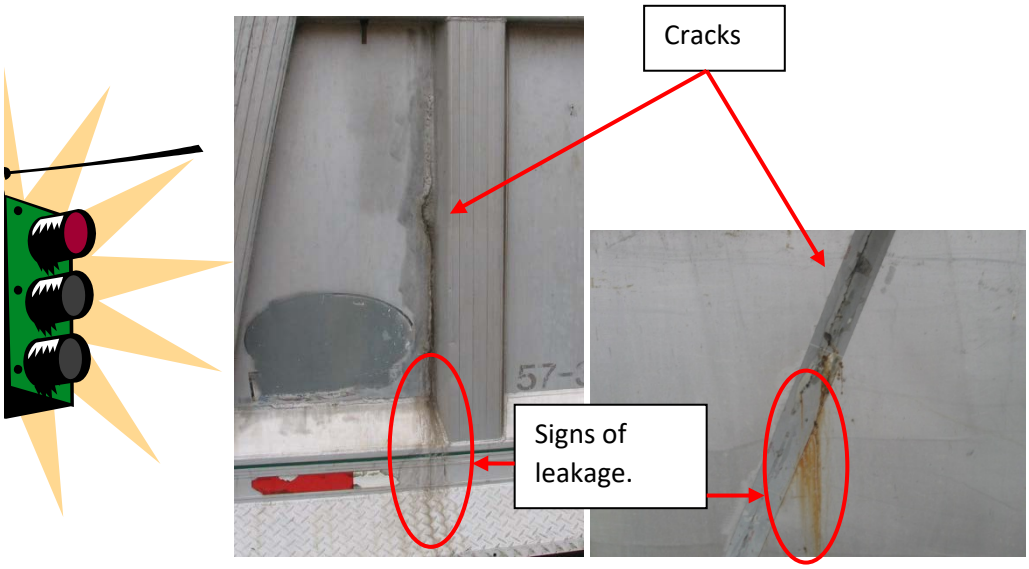


Unacceptable: multiple trailer ID's, or faded out or unreadable ID's

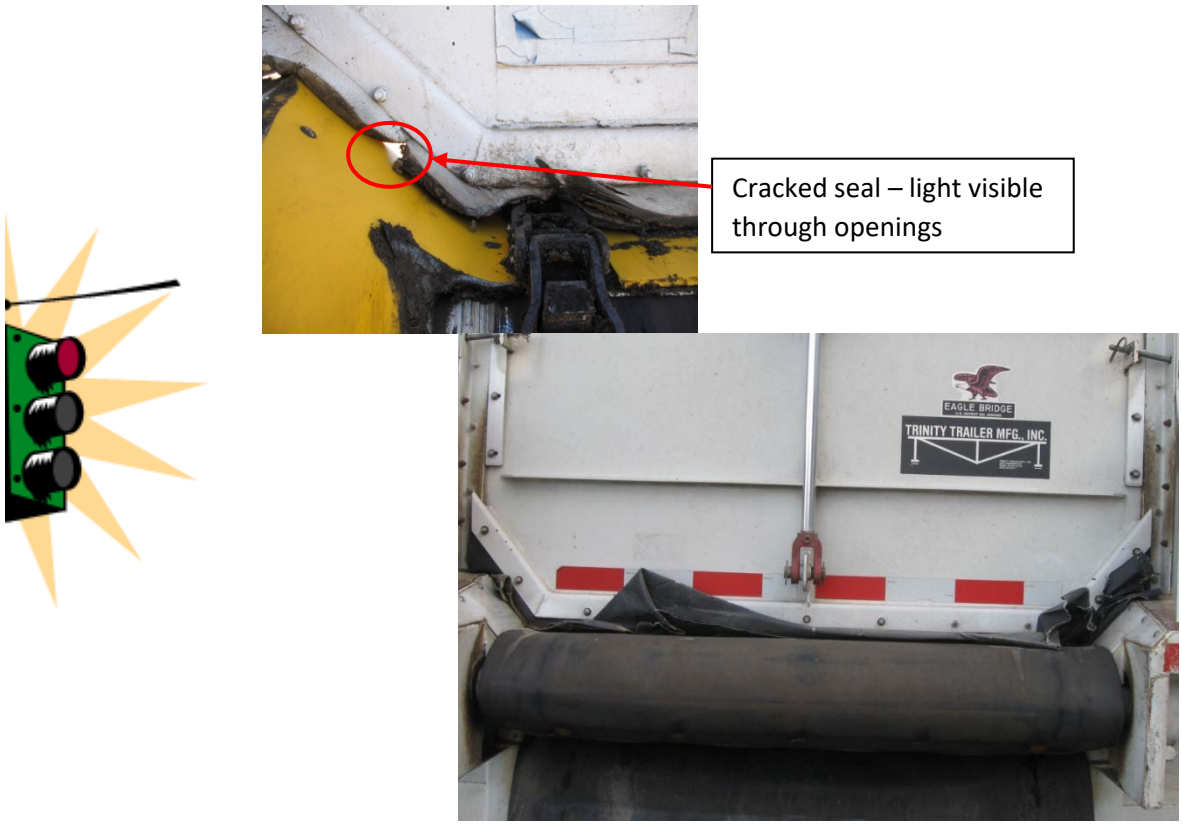
Section 3: Trailer Body Integrity and Seals

Trailers MUST not leak biosolids!

- Walk around the trailer and look at its body.
- Look to make sure there are no holes or tears on body of trailer through which light can be seen, or where there are signs of leakage.
- Look carefully at gate seals to make sure no holes that let light through and they are making a tight connection.
- Minor holes near the top of the trailer, which do not appear to result in a leak, may be allowed at the Operator's discretion.
  Unacceptable: Cracks or holes with signs of leakage or that let light through. Cracks (usually near welds) that look moist and make you question the integrity of the trailer.



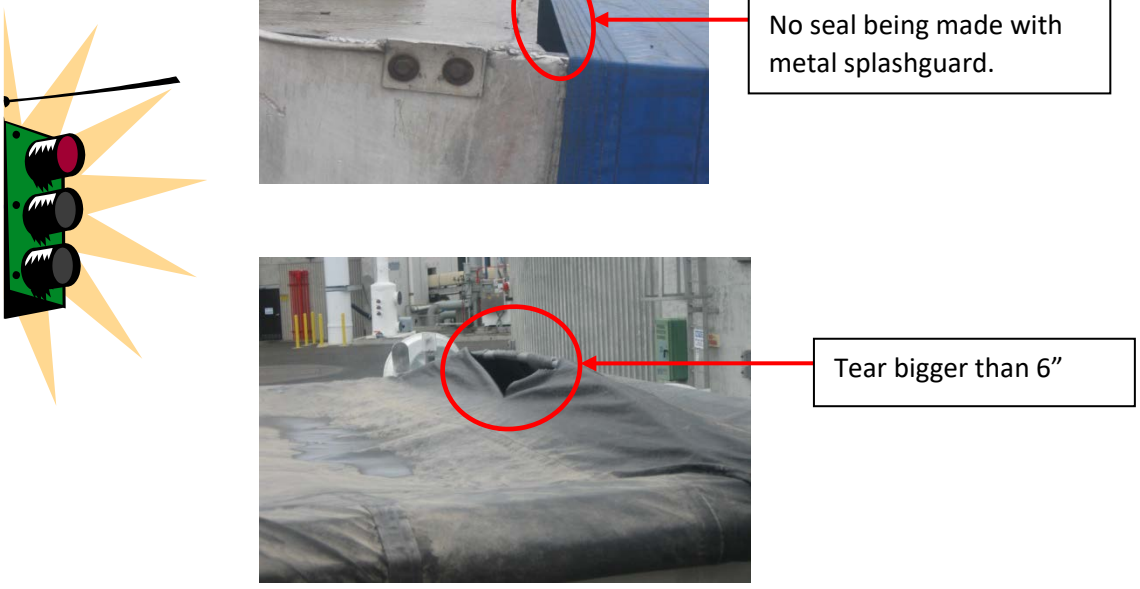
Unacceptable: Cracks or holes with signs of leakage or that let light through. Cracks (usually near welds) that look moist and make you question the integrity of the trailer. Obstructions that might impede the proper use of seals should be removed. Note that belt trailers have a second seal that sits behind the smaller gate (one that opens up, not sideways) which serves as extra security when used properly (extended out towards the front of the trailer).

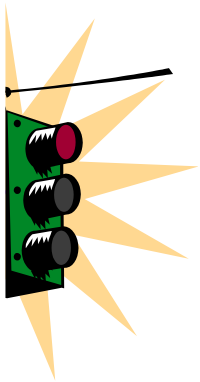


Section 4: Tarp Integrity/Seal

- Tarp must completely cover (e.g. make contact with all metal edges) and seal the truck, with no major holes or rips (over 6 inches).
- Tarp must make a seal with the front splashguard and the back edge.
- Tears less than 6 inches are considered acceptable.
- Depending on the size of the tear/hole (in excess of 6 inches), a driver may be allowed to use duct tape to temporarily patch the tarp and truck may be loaded.
- A minor gap between tarp and splashguard may also be loaded at the Operator's discretion.

Unacceptable: Tarp not making a seal with the trailer (openings), holes/rips and tears bigger than 6 inches and tarps made out of mesh.





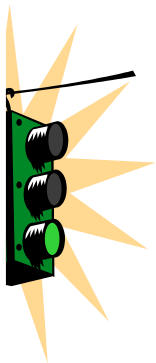
No seal being made with back and side of trailer

Hanging or droopy tarp not making a seal with front splashguard.

Mesh mechanical tarp not making a seal with body of trailer.

Section 5: Primary Locking Devices

- Each trailer is equipped with a primary locking device that keeps the gate latched with air or hydraulics, and these primary devices must be functioning properly to be loaded.
- These systems are designed by manufacturers to fail in the CLOSED position, so the gates will NOT open if there is a failure of the air or hydraulic lines.
- Farm belt and end-dump controls for the gates are located on the trailer (not in the cab), so the driver can not mistakenly push a button while driving and mistakenly open the gate.
- The gate must be latched and closed to load. Operations will not load a truck with the potential of leaking.
- Primary locking devices are circled below.



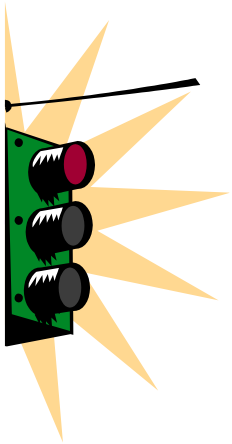
Section 6: Manual Locking Devices

- All trailers must have functioning manual locking devices, which vary by trailer type.
- Operator checks that these devices are present and tight.
- These manual locking devices are a FAILSAFE BACK-UP for the primary locking devices above.
    - Because these are a failsafe back-up and the primary locking devices fail in the closed position, that means there is low-risk of these devices being the main factor in keeping the door closed.
    - Some end-dumps may have poor seals that would make the turnbuckles more important to ensuring no leaks, especially with potentially wetter material like digester cleanings. Silicone can also help address this issue.

End Dumps: For 100% functionality of failsafe back-up system, end-dump trailers must have:

- 2 turnbuckles on bottom; or
- 2 on top (one on each side) and one on bottom; or
- 2 on each side (total of 4).

Unacceptable: Missing Turnbuckles on bottom or any configuration other than those described above.

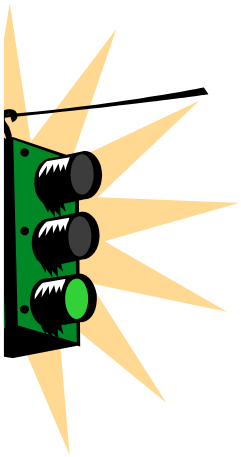


Missing Turnbuckle

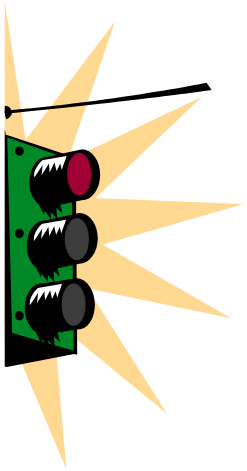
Missing Turnbuckles on bottom of gate.

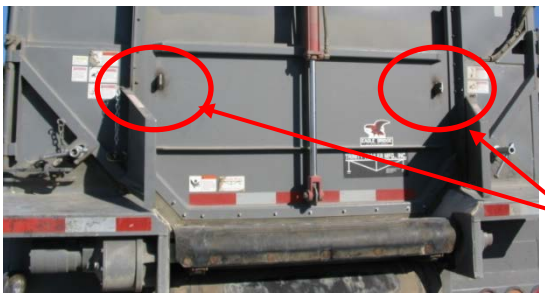
Live Bottoms / Farm Belts: For 100% functionality of failsafe back-up system, these trailers must have:

- 1 turnbuckle on each side plus 2 pins, one on each side of sliding gate.



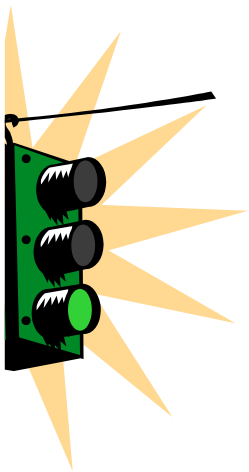
Unacceptable: Any missing turnbuckles or pins, or broken pins.



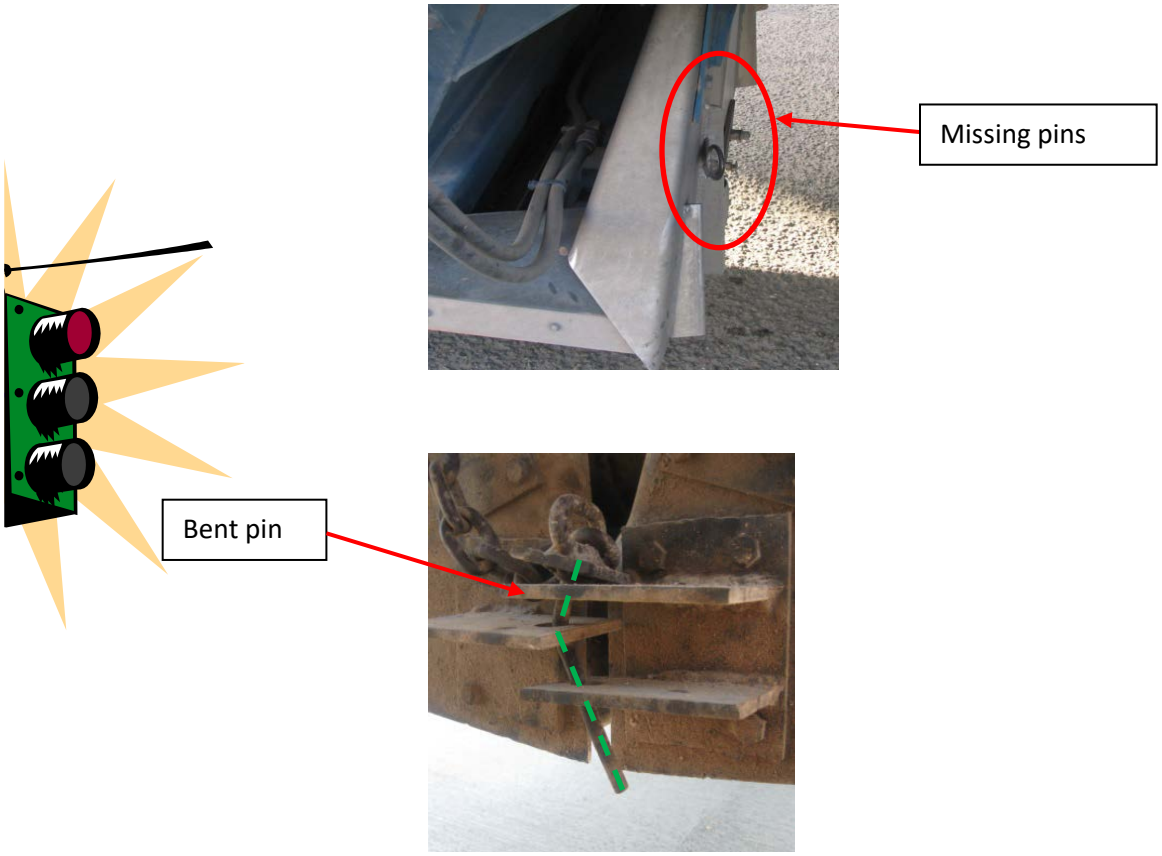


Doubles:

- Must have safety pins in front and back of each clamshell.
- Pins should fit in loosely, not tight.
- Pins should not be bent.
- Tight or bent pins are a sign of the gates not being closed correctly, allow driver to adjust their gates (close them further) to see if this resolves the problem.



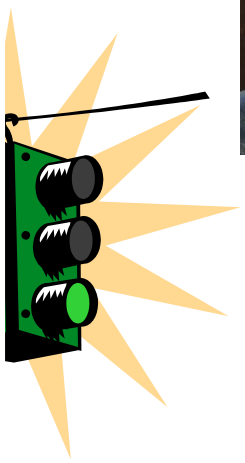
Unacceptable: Missing or bent pins



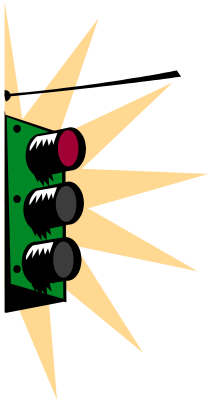
Section 7: Baffles or Splashguards

Splashguards are pieces of metal welded on to the front (and sometimes back) of the trailer to help in maintaining material inside in the event of a hard break.

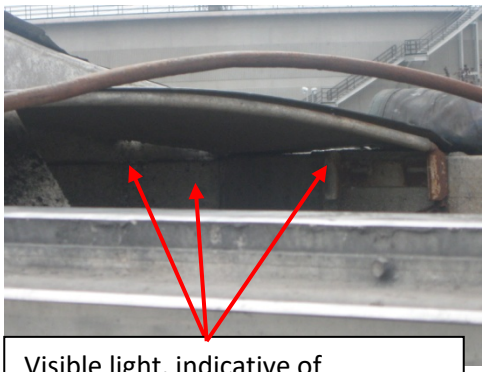
- Back splashguards are required only if tarp does not have a tarp extension that ensures a seal in the back. Splashguards must be completely welded or bolted and sealed.
- Front splashguards must be 18-24 inches, **doubles may have smaller splashguards**. Failure to meet this requirement results in a write-up, and if splashguard is missing or not making a seal with the tarp, the load is denied.
- If gaps/openings exist, depending on the size of the opening, a trailer may be loaded or denied at the Operator's discretion.



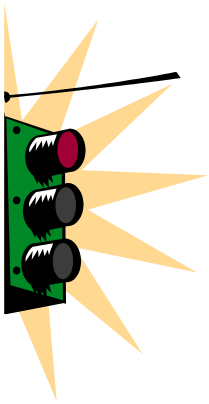
Unacceptable: Short or missing splashguards, or not welded or secured splashguards or with openings.

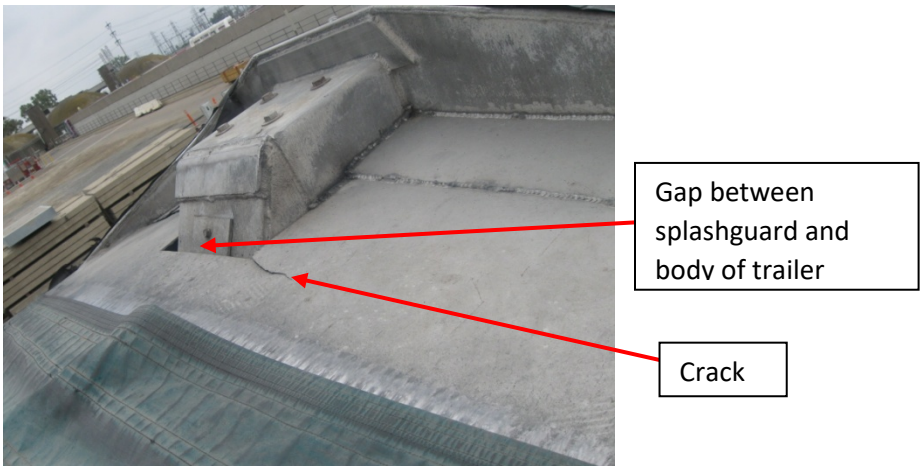


Missing metal splashguard.



Visible light, indicative of insecure/un-welded splashguard

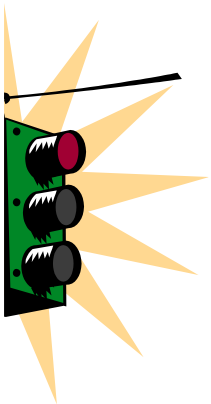




Section 8: Cleanliness

- Trailers must be washed/cleaned between trips and **before arriving** at OC San.
- No biosolids clumps should be present/visible on the outside of the truck or trailer.
- If possible, notify Compliance while trailer is still on site, as this could be indicative of a possible Vendor's operational problem (onsite or with hauler procedures).

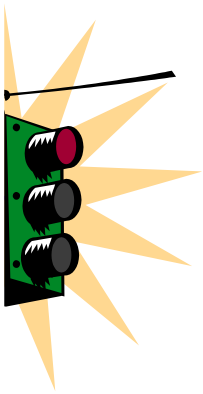
Unacceptable: Biosolids or excessive dirt or other debris on outside of truck or trailers or on wheels.



Section 9: Odors

- Trailers must be washed between trips and before arriving at OC San.
- Residual odors can be a nuisance for OC San's neighbors and the public in general during transportation.
- **Unloaded tarped** trailers should not be odorous.
- If possible, notify Compliance while trailer is still on site, as this could be indicative of a possible Vendor's operational problem (onsite or with hauler procedures).

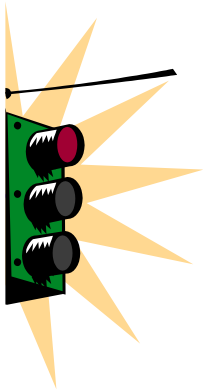
Unacceptable: Biosolids or excessive dirt or other debris on outside of truck or trailers or on wheels.



Section 10: Flaps (belt)

Flaps must make a closed seal with the back of the trailer door so no light can be seen through.

Unacceptable: Flaps folded preventing full seal

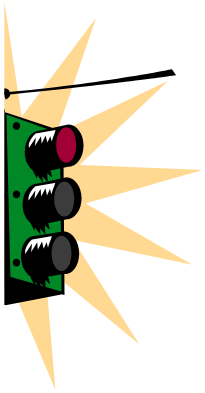


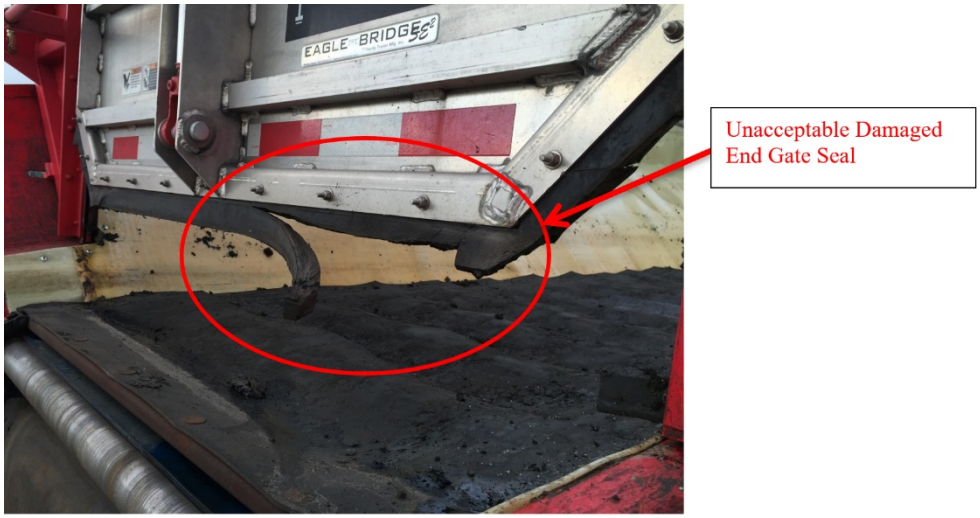
Section 11: Seals

Cracks or holes with signs of leakage or that let light through. Cracks (usually near welds) that look moist and make you question the integrity of the trailer. Obstructions that might impede the proper use of seals should be removed.

Note that belt trailers have a second seal that sits behind the smaller gate (one that opens up, not sideways) that serves as extra security when used properly (extended out towards the front of the trailer).

Unacceptable:





Biosolids Truck Loading Write-Up Form

A trailer not meeting the guidelines outlined above must be documented using a Biosolids Truck Loading Write-Up Form and trailer must be locked out in the AutoScale software. For instructions on how to lock out a trailer, see the AutoScale Instructions Manual booklet and excerpt below.

30101

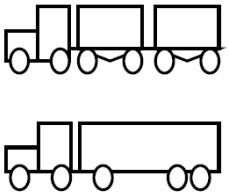
BIOSOLIDS TRUCK LOADING WRITE-UP

(PLEASE PRINT)

☐ Plant 1 Truck Loading Station ☐ Plant 2 Truck Loading Station

Operator		Trailer #	
Driver		Company	
Truck ID		Date	

Type of Trailer:



☐ **Clamshell:** requires safety pins in front and back of each clamshell
☐ **Sliding bottom gates:** requires safety pins on sliding gate
☐ **End dump:** requires wing nuts (2 on bottom, 1 on each side and 1 on bottom, or 1 on bottom and 1 on the opposite side) and sliding gate must have a pin locking mechanism
☐ **Tarp:** _____
☐ **Other (explain):** _____

☐ **LOAD DENIED**

- ☐ Trailer(s) not water-tight and spills material
- ☐ Trailer(s) not having functioning manual locking devices
- ☐ Trailer(s) has inappropriate manual locking devices

☐ Corrective action needed - Future loads will be denied if not corrected
☐ Driver received this checklist
☐ Operator locked out truck on AutoScale 2000

TRUCK DRIVER:
I understand that I need to IMMEDIATELY inform my dispatcher/supervisor of this issue so that corrective actions may be taken. I understand that OC San will NOT load trailers that do not meet the above referenced safety requirements.

Print Name_____Signature_____Date_____

OC SAN OPERATOR:
This truck/trailer has been inspected for the above referenced issue. I confirm that this issue has been fixed.

Print Name_____Signature_____Date_____

☐ **Operations = white** ☐ **Driver = yellow** ☐ **ECRA = pink**

\\share01\ocsd\dept\es\630\Compliance\Biosolids\Production_Hauling\Truck_Loading_Ticket_Templates

Locking / Unlocking Trailers – excerpt from AutoScale Manual

TO LOCKOUT A TRAILER

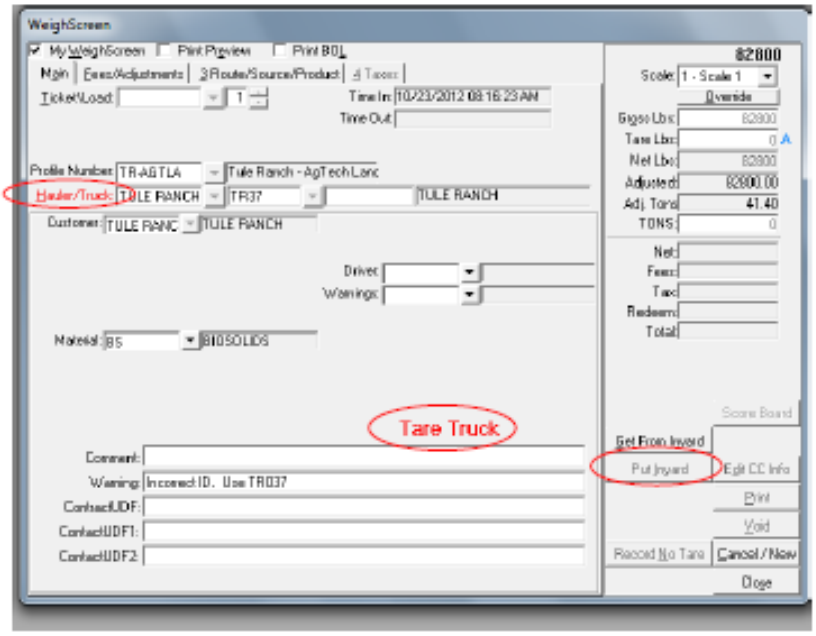
***Locking out a trailer = DO NOT LOAD**

When trailer is locked, the software will not allow you to create a ticket – Avoid creating a manual ticket

1. Fill out a Biosolids Truckloading Write-Up form, have driver sign it. Give yellow copy to driver. Operations does not sign until the issue has been resolved. White copy of the form is kept at Truck Loading on the **Do Not Load** clipboard, and Pink copy is sent to EC.
2. Lock the trailer. In AutoScale 2000, Click **Truck** icon  , **Truck – Choose a Hauler** window should appear.
3. Under **General** tab, select the following:
   1) **Hauler:** <Select the contractor from drop arrow>.
   2) **Code:** <Select the trailer that you wish to lockout from drop arrow>.
   3) **Warning:** <**Type reason of why truck is being locked out. Include your initials and date.**>.
   4) DO NOT ENTER DRIVER NAME
   5) Click the **Truck LockedOut** check box.
4. Click <**Save**> and <**Close**>. Trailer is now locked out.
5. Store the white copy on the **Do Not Load** clipboard at Truck Loading. Send the pink Copy to EC. Give the yellow copy to the driver.

YOU KNOW A TRAILER HAS BEEN LOCKED OUT IF

1. The words Hauler/Truck & Tare Truck on WeighScreen become red.
2. **Put Inyard** button is not available (grayed out).
3. Warning field will contain reason for trailer being locked out.



4. A locked out message will appear at the bottom of the main window.

5. Do not override this safety mechanism by creating a manual ticket!

TO UNLOCK A TRAILER

1. Find the white copy of the write up form in the Do Not Load clipboard. If you cannot find the white copy, call Plant 2 Truck Loading station (x7663) and if they have it, ask them to sign and send the white copy to EC. Proceed to unlock the trailer.
2. Verify written up issue has been corrected.
3. Sign the white copy of the Biosolids Truck Loading Write-up form. Continue through steps below.
4. Unlock the trailer in AutoScale 2000 by clicking the Truck icon , Truck – Choose a Hauler window should appear.
5. Under General tab, select the following:
   1) Hauler: <Select hauling company from drop arrow>.
   2) Code: <Select the trailer that you wish to unlock from drop arrow>.
   3) Warning: <Delete warning message>.
   4) Click the Truck LockedOut check box to uncheck it.
6. Click Save and Close. Truck is now unlocked.
7. Send the White copy of the Biosolids Truckloading Write-up form to EC. Yellow copy stays with driver for his records.

I.D.1. Hauling Biosolids Information Cards

rev. 04/15/21

Hauling Biosolids

ORANGE COUNTY SANITATION DISTRICT

Orange County Sanitation District
www.ocsan.gov/biosolids

Control Center: (714) 593-7025
Biosolids: Cindy Vellucci: (714) 593-7156, (714) 366-0573

Plant No. 1
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7025

Plant No. 2
22212 Brookhurst Street
Huntington Beach, CA 92646
(714) 593-7625

rev. 04/15/21

Remolcando Biosólidos

ORANGE COUNTY SANITATION DISTRICT

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Huntington Beach, CA 92646
(714) 593-7625

What are Biosolids?

- Solid product of wastewater treatment process
- Highly treated to minimize pathogens, nutrient-rich, black mud-like, bulk soil amendment
- ***Non-Hazardous*** material (per EPA and state law)
- Industrial wastewater is pre-treated to ensure metals and pollutants are reduced
- Can be used as a nutrient or fuel source
- Governed by federal, state, and local laws
- Safe when used according to laws
- Odor is similar to other fertilizing material

rev. 04/15/21

¿Qué son los Biosólidos?

- Sólidos residuos del proceso de tratamiento de aguas negras
- Materiales orgánicos altamente tratados y ricos en nutrientes que se usan como fertilizantes agrícolas
- Materiales considerados ***no peligrosos*** (según la EPA y la ley estatal)
- Las aguas industriales son previamente tratadas para reducir contaminantes en los biosolidos.
- Pueden ser usados como nutrientes para plantas y como combustible
- Son regulados por leyes federales, estatales, y locales
- Su uso es seguro cuando se observan los reglamentos
- Su olor es similar a otros fertilizantes orgánicos

Orange County Sanitation District (OC San)
Bulk Biosolids Profile Sheet
NON-HAZARDOUS MATERIAL

DESCRIPTION

Biosolids are a highly treated, safe, nutrient-rich organic fertilizing material derived from the treatment process of wastewater and it is suitable for beneficial recycling. Biosolids, formerly known as treated sewage sludge, are processed by anaerobic digestion and dewatered by belt-filter presses. OC San's digesters are operated for a specific time at the required elevated temperature, which significantly reduces the disease-causing microorganisms (pathogens). OC San's treatment parameters produce biosolids suitable for fertilizing agricultural land in accordance with EPA application guidelines and site restrictions or as a compost ingredient.

Biosolids are a **non-hazardous material** that complies with all state, federal, and local regulations and laws (40 CFR 503, CCR Titles 22 & 23, etc.). Biosolids **do not constitute a hazardous material** per the aforementioned regulations and laws. Routine metal concentration analyses demonstrate that EPA standards are met, allowing this material to be beneficially reused by land application or composting as a soil amendment at unrestricted metal loading rates.

PHYSICAL/CHEMICAL CHARACTERIZATION

Appearance	Black semi-solid with slippery mud consistency
Odor	None to Odorous
pH	6 to 8
Solids	~18-24% Solids (i.e., 75-80% Water)
Free Liquid	None
Nitrogen	~4.5% }
Phosphorus	~2.5% } 4.5-2.5-<1 NPK Fertilizer (dry weight basis)
Potassium	<1%
Metals	Meets EPA's 40 CFR Part 503 Table 3 limits (Exceptional Quality – EQ level) for As, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Zn
Soluble Metals	Non-Hazardous per California Title 22 STLC and TTLC
Pathogen Reduction	Meets EPA's 40 CFR Part 503 "Class B" requirements (digested for a least 15 days at a temperature of at least 95°F)

HANDLING PRACTICES

Although biosolids are treated to reduce pathogens, the potential for exposure to pathogenic microorganisms still exists. Major routes of infection are ingestion, and direct contact with cuts and abrasions. Good, common sense, personal hygiene and work habits provide adequate protection for workers handling biosolids.

RECOMMENDATIONS

- ALWAYS wash hands after contact with biosolids
- NEVER, eat, drink, or smoke before washing hands
- Eat in designated area AWAY from biosolids handling activities
- Change into CLEAN clothes daily
- Use GLOVES when applicable
- Keep wounds COVERED and CLEAN with dry bandages
- Wear a dust mask around dried biosolids

ORANGE COUNTY SANITATION DISTRICT (OC San)
HOJA DE DATOS SOBRE LOS BIOSÓLIDOS
MATERIAL NO PELIGROSO

DESCRIPCIÓN

Los biosólidos son materiales fertilizantes orgánicos provenientes del tratamiento de los desagües municipales que han pasado por un tratamiento intenso. Son seguros, y contienen muchos nutrientes aptos para uso agrícola. Conocidos anteriormente como lodos sanitarios, los biosólidos son tratados por digestión anaeróbica y luego desaguados en filtro-prensas. Los digestores de OC San son operados por un tiempo especificó y ha cierta temperatura que reducen las bacterias patógenas que causan enfermedades. Este proceso de tratamiento produce biosólidos de Clase B, que según la EPA, son aptos para ser utilizados como fertilizantes en suelos agrícolas, bajo ciertas guías y restricciones, o como ingrediente para producir compostaje.

Los biosólidos están definidos como un material "**No Peligroso**" y cumplen con todas las reglas y leyes estatales, federales y locales (40 CFR 503, CCR Titles 22 & 23, etc.). Los biosólidos, por lo tanto, **no son un "material peligroso"** en base a las reglas y leyes mencionadas arriba. Los análisis de rutina de metales demuestran que las normas definidas por la EPA se cumplen, y por lo tanto permiten que los biosólidos se utilicen como fertilizantes aplicándolos en suelos agrícolas o como compostaje.

CARACTERIZACIÓN FÍSICO/QUÍMICA

Apariencia	Negro, semi-sólido, con una consistencia de lodo resbaloso
Olor	Ninguno a oloroso
pH	6 a 8
Sólidos	~18 - 24% Sólidos (75 - 80% Agua)
Líquidos libres	Ninguno
Nitrógeno	~4.5% } 4.5-2.5-<1 NPK (peso en seco)
Fósforo	~2.5%
Potasio	<1%
Metales	Cumple con 40 CFR Parte 503 límites de la Tabla 3 de la EPA (arsénico, cadmio, cromo, cobre, plomo, mercurio, níquel, selenio, y cinc)
Metales Solubles	No-Peligroso en base al Título 22 de California para la toxicidad en sólidos y líquidos
Reducción de Patógenos	Cumple con los requisitos del 40 CFR Parte 503 "Clase B" de la EPA (procesado por espacio de por lo menos 15 días a temperaturas que exceden los 95ºF)

PRÁCTICAS DE PRECAUCION

A pesar de que los biosólidos pasan por un tratamiento intenso para la reducción de organismos patógenos, existen posibilidades de exposición a ciertas enfermedades. La mayoría de las rutas de infección son la ingestión, y el contacto directo a través de cortaduras en la piel. Estas infecciones se pueden prevenir si se usan el sentido común, la higiene personal y hábitos de trabajo adecuados.

RECOMENDACIONES

- SIEMPRE lávese las manos luego de haber estado en contacto con biosólidos
- NUNCA beba, coma, o fume antes de haberse lavado las manos
- Coma en áreas designadas que estén fuera de la zona de manejo de biosólidos
- Cámbiese de ropa diariamente
- Utilice guantes cuando sea necesario
- Mantenga las heridas CUBIERTAS y LIMPIAS con vendajes secos
- Use una máscara que filtre el polvo cuando trabaje con biosólidos secos

EMERGENCY RESPONSE

Flammability: Gases formed when biosolids are enclosed in airtight containers can be flammable if ignition temperature is reached (See Potential of Hazardousness, below).

Exposure - Skin: Wash area thoroughly with soap and water. Use antiseptic on wounds, and bandage with a clean, dry dressing. Consult a doctor regarding exposure to the eyes, an open wound, or if wastewater by-products get in the mouth.

Exposures - Eyes: Flush eyes thoroughly, but gently with water for at least 15 minutes.

Releases: Scoop with shovel, add absorbent material or dirt and sweep with broom. **Note:** Discharges to waterways are prohibited. Place sand bags or other blocking material to divert from storm drains.

Disposal: If not mixed with other materials: use as a soil amendment (land application or compost) at OC San approved sites. If cross-contaminated with any other material: follow other material's disposal criteria.

POTENTIAL OF HAZARDOUSNESS

Biosolids are not combustible under ordinary circumstances. If stored in airtight transport containers for extended periods, methane gas may be produced, possibly igniting or exploding in the presence of a spark or open flame. Extinguish fire with dry chemical, water spray, or foam. Avoid use of open flames in confined areas and around sealed transport containers. Vent confined areas and the transport containers if biosolids have been stored for any extended length of time.

GENERATOR DATA

ORANGE COUNTY SANITATION DISTRICT
Control Center: (714) 593-7025 (Open 24 hours, 7 days a week)
10844 Ellis Avenue
Fountain Valley, CA 92708-0718

RESPUESTA A EMERGENCIAS

Flamabilidad: Cuando los biosólidos se guardan en contenedores cerrados producen gases inflamables que se pueden encender a temperaturas de ignición (Vea Potencial de Peligrosidad, abajo).

Exposición - Piel: Lávese bien con agua y jabón. Utilice antisépticos en las heridas y cúbralas con vendajes limpios y secos. Consulte un doctor en cuanto a la exposición a los ojos, heridas abiertas, o si ha ingerido biosólidos.

Exposición - Ojos: Lávese bien con mucha agua (>15. min.).

Derrames: Recoger con pala, añada material absorbente o tierra y barra el residuo con una escoba. **Nota:** La descarga a los cursos de agua está prohibida. Ponga bolsas de arena, tierra o cualquier otro material para que no se escurran a las canaletas o a cursos naturales de agua.

Disposición: Si no se encuentra mezclado con otros materiales los biosólidos pueden ser utilizados como fertilizante o compostaje en sitios aprobados por OC San. Si se encuentra mesclado con otros materiales siga las instrucciones de disposición del otro material.

POTENCIAL DE PELIGROSIDAD

Los biosólidos no son combustibles en circunstancias normales. Si se encuentran almacenados en contenedores cerrados por períodos largos, los biosólidos pueden producir gas metano que a su vez puede encenderse o explotar cuando expuesto a alguna chispa o fuego. Apague el fuego con extintores químicos, agua, o espuma. Evite el uso de fuegos abiertos en áreas confinadas y alrededor de los contenedores de transporte de biosólidos. Ventile las áreas confinadas y los contenedores de transporte especialmente si los biosólidos han sido almacenados por mucho tiempo.

DATOS DEL GENERADOR

ORANGE COUNTY SANITATION DISTRICT
Centro de Control: (714) 593-7025 (todos los días, las 24 horas del día)
10844 Ellis Avenue
Fountain Valley, CA 92708-0718

Hauling Biosolids

- Obey all traffic laws
- Have required paperwork and understand it. Make sure you check your bill of lading before leaving the loading facility.
- Clean truck and trailer before leaving the loading facility and recycling site. If back hauls are taken, ensure trailer is properly cleaned before returning to OC san
- Check your truck for safety before leaving treatment plant and recycling site
- Ensure truck has good tarp system and that all seals are tight
- Check all manual locking devices
- Keep windows closed and use air conditioning during loading, unloading and biosolids clean-ups
- If safe to do so, brake slowly to avoid spills
- Wash or sanitize hands often
- Wear PPE at OC San

rev. 04/15/21

Remolcando Biosolidos

- Obedesca todas las leyes de tránsito
- Mantenga a la mano toda la documentación necesaria, léala y entiendala. Asegúrese de revisar su factura de cargada antes de salir antes de salir de el sitio de carga
- Lave su remolque antes de salir de el sitio de carga y de reciclaje. Si trae carga de regreso, asegurese que el remolque este apropiadamente limpio antes de regresar a OC San
- Verifique que su remolque cumpla con todas las medidas de seguridad antes de salir de el sitio de carga y lugar de reciclaje
- Asegure que su remolque tenga un buen sistema que cubra la carga y que todos los sellos esten haciendo contacto
- Revise los pernos manuales
- Mantenga sus ventanas cerradas y use el aire acondicionado mientras cargue, descargue, y mientras se ocupe de algún derrame
- Si es seguro, trate de parar despacio para evitar un derrame
- Lave o desinfecte sus manos con frecuencia
- Usar equipo de protección personal adentro de OC San

Safe Handling Precautions

Although biosolids are treated to reduce pathogens, the potential for exposure to pathogenic microorganisms still exists. Major routes of infection are ingestion, and direct contact with cuts and abrasions.
Good personal hygiene and work habits provide adequate protection for workers handling biosolids. To minimize your exposure, the following precautions are recommended:

- Wear your personal protective equipment (PPE)
  - Leather gloves
  - Safety glasses
  - Boots
    (optional, but recommended during clean-ups)
  - Liquid repellant coveralls
    (optional, but recommended during clean-ups)
- Wash hands with soap after handling biosolids, before eating, and if possible, use onsite showers
- Don't eat, smoke, or chew while working with biosolids
- Routinely clean soiled PPE and store in truck
- Change clothes at end of shift; if possible, wash at onsite laundry
- Disinfect and cover cuts

rev. 04/15/21

Precauciones de Seguridad Personal

A pesar de que los biosólidos pasan por un tratamiento intenso para la reducción de organismos patógenos, existen posibilidades de exposición a ciertas enfermedades. La mayoría de las rutas de infección son la ingestión, y el contacto directo a través de cortaduras en la piel. Estas infecciones se pueden prevenir si se usan el sentido común, la higiene personal y hábitos de trabajo adecuados. Para prevenir esto, se recomiendan las siguientes precauciones:

- Utilice su equipo de protección personal
  - Guantes de cuero
  - Lentes de seguridad
  - Botas (Opcionales pero recomendables durante limpieza)
  - Cubretodos (Opcionales pero recomendables durante limpieza)

- Lávese las manos con jabón durante cualquier interrupción de labores y antes de comer. Si es posible, use duchas en el sitio de trabajo

- No coma, fume, o masque mientras trabaje con biosólidos

- Limpie su equipo de protección personal y mantengalo a mano

- Cámbiese de ropa al final de la jornada y si es posible lávela en el trabajo

- Desinfecte y cubra cualquier herida

Be a Good Neighbor

Avoid routes and stops in heavily populated areas

- Try not to stop for gas or meals with a truck loaded with biosolids
- Do not park near populated areas (use distant truck parking)
- Dispose of all trash at OC San's Truckloading Office or a trash receptacle at the recycling site
- If you are going to be late or miss a load, make sure to contact (either through dispatch or self call) the Plant 1 Control Center, phone (714) 593-7025, or Plant 2 Operations Center, phone (714) 593-7625
- Do not use your horn unless it is an emergency
- While at OC San:
  - Obey the posted speed limits
  - Before 6 AM do not idle engines longer than 5 minutes after parking in line
  - Stay in or near your truck. Do not wander around the treatment plant. This is a safety and security issue and will be dealt with aggressively by Huntington Beach Police.
  - Bathroom facilities are open for your use 24 hours/day in the Control Center and the Truck Loading Office

rev. 04/15/21

Sea un Buen Vecino

Evite rutas y paradas en areas fuertemente transitadas

- Trate de no parar a hechar gas o a comer con el camion lleno de biosolidos
- No se estacione serca de areas populadas (utilize estamosionamientos de camiones distante)
- Tire su basura en los basureros de las oficinas de Truck Loading de OC San o en el sitio de reciclaje
- Si va a llegar tarde o faltar a recojer una carga, asegúrese de llamar (ya sea por medio de su supervisor o directamente) **al Centro de Control de la Planta 1, telefono (714) 593-7025, al Centro de Operacion de la Planta 2, telefono (714) 593-7625**.
- No use su claxon a menos en casos de emergencia
- Mientras en OC San:
  - Obedesca los limites de velocidad marcados
  - Antes de las 6 AM NO deje el motor corriendo por mas de 5 minutos mientras en linea
  - Permanesca cerca de su camión. No se pasee por la planta. Se trata de un asunto de seguridad y sera tratado agresivamente por la Policía de Huntington Beach.
  - Baños están abiertas para su uso las 24 horas del día en el Centro de Control y en la oficina de Truck Loading

Biosolids Truck Hauling Required Equipment

- Emergency Equipment
  - Triangles
  - Fire extinguisher
  - First aid kit
- Safety Equipment
  - Gloves
  - Protective glasses
  - Hard hat
  - Safety vest
  - Boots
- Spill Response
  - Broom
  - Shovel
  - Bucket
- Information Packet for Hauling Biosolids

rev. 4/15/21

Equipo Requerido Para Remolcar Biosólidos

- Equipo de Emergencia
  - Triangulos
  - Extinguidor de incendios
  - Botiquin de primeros auxilios
- Equipo de seguridad
  - Guantes
  - Lentes protectivos
  - Casco
  - Chaleco de seguridad
  - Botas
- Spill Response
  - Escoba
  - Pala
  - Balde (recomendado)
- Paquete de información para remolcar biosólidos

rev. 04/15/21

How to Handle Biosolids Clean-ups

- **SAFETY**! Follow safe handling precautions when dealing with road clean-ups, wear and use personal protective equipment. Divert traffic with cones or flares as needed.
- **STOP and CONTAIN**. If leaking biosolids, STOP truck as soon as it is safe. Prevent the spread of biosolids. Using your shovel, stop biosolids from entering waterways or storm drain with sand, dirt or other blocking material.
- **NOTIFY**. Immediately notify your supervisor. OC San Control Center must also be notified (714)593-7025
  Notify highway patrol (911) if spill occurred on public right-of-way
- Provide the following information: your name and trucking company; location and time of incident; approximate amount of biosolids release; type of response already received.
- Remain with truck unless leaving to contact emergency services
- Assist authorities and help with biosolids clean-up
- Pick up the spilled material, and if possible, reload the biosolids back into the truck
- After biosolids are picked-up, use your broom and shovel to clean the site with adsorbent material. Sweep up debris
- Return the biosolids to OC San or to original final destination (recycling site) and wash used tools at the loading/unloading wash area station.
- Do not leave without cleaning up the biosolids

rev. 04/15/21

Como Liriar la Limpieza de Biosolidos

- **SEGURIDAD**! Siga precauciones de seguridad cuando este limpiando un derrame. Utilize su equipo de protección personal. Desvíe el tráfico con conos o cartuchos de iluminación según se necesario
- **PARE Y CONTENGA**. Si hay una fuga de biosolidos, DETENGASE lo mas pronto posible, teniendo en cuenta su seguridad. Prevenga la propagación de biosólidos. Utilizando su pala, no deje que los biosólidos entren en los cursos de agua o drenaje de aguas pluviales utilizando arena, tierra u otro material de bloqueo
- **NOTIFIQUE**. Inmediatamente notifique a su supervisor. El Centro de Control de OC San también necesita ser notificado (714)593-7025.
  Notifique la Patrulla de Caminos (911) si el derrame ocurrió en una vía publica
- Provea la siguiente información: Su nombre y compañía para la cual trabaja; lugar y hora del incidente; cantidad estimada de el material; tipo de respuesta lla adquirida
- Permanezca con el remolque a menos que vaya a contactar servicios de emergencia
- Asista a las autoridades y ayude a limpiar
- Recoja el derrame y si es posible, regrese los biosolidos al remolque
- Luego de recojer los biosolidos, use su pala y escoba para limpiar el lugar aplicando materiales absorbentes. Barra los resíduos
- Regrese los biosólidos a OC San o a su lugar original de descarga, no lave su equipo de limpieza en el lugar del derrame, en vez, labelo en el lugar de descarga
- No abandone el lugar antes de haber recogido y limpiado el área afectada

4. PROCEDURES

A. Procedure Matrix for Responding Parties in *Off Site* Biosolids Release Clean-up Response

Step No.	Driver	Driver's Dispatcher or Supervisor
1.	**STOP AND CONTAIN** – When safe to do so, the Driver is to stop the vehicle ***immediately*** and park in a safe location in order to prevent spreading and distributing the biosolids. Halt source of biosolids being released.	**RESPOND** -The dispatcher or supervisor should advise the driver to proceed with material recovery using the equipment in the truck (e.g., shovel and broom) and Clean-up Guidelines (Section C) below, as long as it is safe to do so. If additional equipment is needed, the dispatcher or supervisor will coordinate with CalTrans or contract service provider for assistance. The dispatcher will request an estimated mobilization and arrival time from the contract services representatives.
2.	**SAFETY** - Driver is to maintain his own safety during all steps of this procedure, including while demarcating the incident site using traffic cones, reflectors, and/or flares.	**NOTIFY** -**The dispatcher or supervisor must notify CHP or similar applicable agency (if outside OC San facilities in a public right-of-way) as needed, as well as contacting OC San's Control Center (714) 593-7025 *within 30 min. of learning of the release*, and report the following:** • Incident location • Time of incident • Water ways impacted? • Approximate amount of the material released • Responding resources and agencies • Additional resources needed equipment If the release incident occurs outside OC San's service area and OC San will not be directly responding to the incident location, the Dispatcher can coordinate directly with Compliance who will track and communicate the relevant information to pertinent people. **If the dispatcher or driver leave a voice mail for Compliance staff and don't get a call back within 30 minutes, they will need to notify the Control Center.**
3.	**NOTIFY** - Driver will notify dispatcher or supervisor and report the incident time, location, approximate amount of the release, and any additional equipment that may be needed to recover the material and clean the area. If necessary for traffic control, the driver or dispatcher shall also notify highway patrol.	Keep OC San apprised of updates either through Control Center or Biosolids Compliance staff contact.
4.	If possible and safe, the driver will take pictures of the incident site before and after clean-up from multiple perspectives.	
5.	See Clean-up Guidelines below (Section C) for how driver is to assist with material recovery and site clean-up.	

4. PROCEDIMIENTOS

A. Esquema de procedimiento para quienes acuden a realizar la limpieza de derrames de biosólidos *fuera de la planta*

Paso n.°	Conductor	Despachador o supervisor del conductor
1.	**DETENER Y CONTENER** - El conductor debe detener el vehículo ***inmediatamente*** y estacionarlo en un lugar seguro para evitar que se diseminen y distribuyan los biosólidos. Detener la fuente de biosólidos que se están derramando.	**RESPUESTA** - El despachador o supervisor debe aconsejar al conductor que proceda con la recuperación del material usando el equipo que está en el camión (p. ej., pala y escoba) y siguiendo las directrices de limpieza (Sección C) que figuran a continuación, siempre que no sea peligroso hacerlo. Si se necesita algún equipo adicional, el despachador o supervisor se comunicará con CalTrans o con el proveedor de servicio contratado para obtener ayuda. El despachador les solicitará a los representantes del servicio contratado que le digan aproximadamente a qué hora se movilizarán y llegarán.
2.	**SEGURIDAD** - El conductor debe mantener su propia seguridad durante todos los pasos de este procedimiento, incluso mientras delimita el lugar del incidente con conos de tráfico, reflectores o bengalas.	**NOTIFICACIÓN** - El despachador o supervisor debe notificar a CHP o a la agencia similar que corresponda (si está fuera de las instalaciones de OC San en un derecho de paso público) según sea necesario, y llamar al Centro de Control del OC San al (714) 593-7025 *dentro de los 30 minutos de ponerse en conocimiento del derrame*, e informar lo siguiente: • Lugar del incidente • Hora del incidente • ¿Fuentes de agua afectadas? • Cantidad aproximada de material derramado • Recursos y agencias que responden • Recursos adicionales que se necesiten
3.	**NOTIFICCIÓN** - El conductor notificará al despachador o supervisor, e informará la hora y el lugar del incidente, la cantidad aproximada de material derramado y todo equipo adicional que pueda necesitarse para recuperar el material y limpiar el área. Si fuera necesario para el control del tráfico, el conductor o el despachador deberá también notificar a la patrulla de caminos.	Mantener al OC San al corriente de los cambios, ya sea a través del Centro de Control o mediante comunicación con el personal de Cumplimiento de la división Biosólidos.
4.	Si fuera posible y seguro, el conductor tomará fotografías del lugar del incidente antes y después de la limpieza, desde distintos ángulos.	
5.	Consultar las directrices de limpieza (Sección C) que figuran a continuación para saber de qué manera el conductor debe ayudar con la recuperación del material y la limpieza del lugar.	

B. Procedure Matrix for Responding Parties in *In-Plant* Biosolids Release Clean-up Response

Step No.	Driver	Driver's Dispatcher or Supervisor	OC San Control Center / Operations Supervisor	OC San Compliance: Biosolids staff
1.	Driver is to stop the vehicle ***immediately*** after identifying biosolids have been released, and park in a safe location in order to prevent spreading the biosolids. If necessary, stop the source of biosolids release.	The dispatcher or supervisor notifies OC San if OC San is not already responding.	**Stop the driver as soon as the release is identified** and notify On-Duty Supervisor and Compliance immediately.	Upon notification, Compliance will gather available information and send notification out to "Biosolids Spill" list (see References section).
2.	Driver will notify someone from Operations. If no Operators are available, driver will call **OC San's Control Center at (714) 593-7025 to report release.** Driver will also notify his dispatcher or supervisor and report the incident time, location, and the approximate amount of the release.	The dispatcher or supervisor advises the driver to assist with the material recovery and site clean-up using the equipment in the truck (e.g., shovel and broom) and Clean-up Guidelines in Section C below.	Operations staff assist driver contain and clean up biosolids. If necessary, Operations will direct the leaky trailer to the drying beds to unload. Note that the biosolids unloaded in the drying beds need to be kept separate from the grit dumps. Contact On-Duty Supervisor. If at Plant 2, the source of release must be secured before load can be taken to Plant 1 to be placed in drying beds. If unable to contain source of release, load may be taken to the designated emergency site at Plant 2. Coordination with Engineering Construction Supervisor may be necessary due to changing construction staging areas.	Compliance may respond to the incident location. Compliance staff may help coordinate resources to ensure biosolids are properly recovered and handled.
3.	Driver will recover released material as per OC San Operation's instructions.	Dispatcher stays in contact with driver and OC San staff for decision making and support, including additional resources needed at the Contractor's expense, until release has been recovered.	See Clean-up Guidelines (Section C) below.	See Clean-up Guidelines (Section C) below.
4.	See Clean-up Guidelines (Section C) below for how driver is to assist with material recovery and site clean-up.		Operations fills out a "Call Center Complaint" and assigns it to Compliance.	Compile, investigate, and document all information, including root cause and corrective and preventive actions.

B. Esquema de procedimiento para quienes acuden a realizar la limpieza de derrames de biosólidos *dentro de la planta*

Paso n.°	Conductor	Despachador o supervisor del conductor	Centro de control del OC San / Supervisor de operaciones	Cumplimiento de pautas del OC San: personal de Biosólidos
1.	El conductor debe detener el vehículo ***inmediatamente*** después de identificar que ocurrió un derrame de biosólidos y estacionarlo en un lugar seguro para evitar la diseminación de dichos biosólidos. Si fuera necesario, detener la fuente del derrame de biosólidos.	El despachador o supervisor notifica al OC San si el OC San aún no ha respondido.	**Detener al conductor tan pronto como se identifique el derrame** y notificar al supervisor de turno y a Cumplimiento inmediatamente.	Luego de la notificación, el personal de Cumplimiento recopilará la información disponible y enviará una notificación a la lista de "Derrames de biosólidos" (ver la sección Referencias).
2.	El conductor notificará a alguien de Operaciones. Si no hubiera ningún operador disponible, el conductor llamará al **Centro de Control del OC San al (714) 593-7025 para informar del derrame.** El conductor también notificará a su despachador o supervisor e informará la hora del incidente, el lugar y la cantidad aproximada de material derramado.	El despachador o supervisor indica al conductor que asista con la recuperación del material y la limpieza del sitio usando el equipo que está en el camión (p. ej., pala y escoba) y siguiendo las directrices de limpieza que figuran en la Sección C a continuación.	El personal de Operaciones ayuda al conductor a contener y limpiar los biosólidos. Si fuera necesario, el personal de Operaciones dirigirá el tráiler averiado hacia los lechos de secado para que descargue. Si se encuentra en la planta 2, la fuente del derrame debe asegurarse antes de que se pueda llevar la carga a la planta 1 para colocarla en los lechos de secado. Si la fuente del derrame no puede contenerse, la carga puede llevarse al sitio de emergencia designado de la planta 2. Es posible que sea necesario coordinar con el supervisor de Construcción de Ingeniería debido a los cambios en las áreas de montaje de construcción.	El personal de Cumplimiento puede responder y dirigirse al lugar del incidente. El personal de Cumplimiento puede ayudar a coordinar recursos para asegurarse de que los biosólidos se recuperen y manipulen correctamente.
3.	El conductor recuperará el material derramado según las instrucciones de Operación del OC San.	El despachador permanece en contacto con el conductor y el personal del OC San para tomar decisiones y brindar apoyo, lo cual incluye los recursos adicionales necesarios que pagará el contratista, hasta que se haya recuperado el material derramado.	Consultar las directrices de limpieza (Sección C) que figuran a continuación.	Consultar las directrices de limpieza (Sección C) que figuran a continuación.
4.	Consultar las directrices de limpieza (Sección C) que figuran a continuación para ver de qué manera el conductor debe ayudar con la recuperación del material y la limpieza del sitio.		El personal de Operaciones finaliza una Queja del Centro de Llamadas y la asigna a Cumplimiento.	Compila, investiga y documenta toda la información, incluso la causa original y las medidas correctivas y preventivas.

C. Clean-up Guidelines

Note: The following are general, recommended guidelines for material recovery and site clean-up, with the exception of any "must" statements. Because the circumstances and equipment availability are unique for each biosolids release, responding crews must use their professional judgment to determine the most appropriate and effective method for clean-up.

a) **SAFETY FIRST** - All personnel responding to a biosolids release must take appropriate safety measures and wear personal protection equipment (e.g., gloves). Safety glasses must be worn when using kitty litter or loose absorbent if dust is present due to wind or traffic. Traffic control measures must also be taken by appropriately trained personnel, on which the Contractor may rely on local enforcement agencies such as police department or CHP.

b) **CONTAIN** - ***Released biosolids must be contained and prevented from migrating from the incident area.*** If ANY WATER is used in the recovery process, storm drains must be protected with such materials as sand, sandbags, brooms, plastic sheeting, dirt, straw bales, kitty litter, or any other similar blocking material.

c) The incident area must be restored to its original condition or better.

d) **RECOVER** - Small releases can be recovered by the driver or responding crew using the clean-up equipment in the truck (e.g., shovel and broom, clean-up kits).

   (i) **SAFETY FIRST!** Wear personal protective equipment; be mindful of your surroundings at all times.

e) **EXPEDITE –** Releases must be responded to and recovered quickly! Depending on the size, releases can be recovered with mechanical equipment such as a small skip loader or vacuum truck. Contractor is ultimately responsible for providing the appropriate clean-up equipment and personnel. Typically, CHP and CalTrans will require CalTrans clean-up the biosolids in order to minimize traffic impacts. However, if a response occurs outside of CalTrans jurisdiction, contractors must be prepared to implement an expedient response and clean-up along the entire delivery route. However, if contractor fails to respond within one hour, and the release occurs within OC San service area, OC San's Collections and its contractors may respond and back-charge the biosolids Contractor for any costs incurred.

f) Absorbents, such as sand, dirt or kitty litter can be added to the affected area, and swept clean. Tools or trucks should not be cleaned at the incident location, but brought to the management site or OC San and cleaned either at the biosolids loading station or in the drying bed location.

g) If responding with a vacuum truck, the Contractor has the option of hosing down the released biosolids while sucking up the water and biosolids into a vacuum truck. HOWEVER, STORM DRAINS MUST BE PROTECTED TO PREVENT ANY WATER used in the recovery process from entering the storm drains. Protect storm drains with such materials as sand, sandbags, brooms, plastic sheeting, dirt, straw bales, kitty litter, or any

C. Directrices de limpieza

Nota: Las siguientes son las directrices generales recomendadas para la recolección del material y la limpieza del sitio, con la excepción de los enunciados que indican "se debe". Debido a que las circunstancias y la disponibilidad de equipos son distintas en cada caso de derrame de biosólidos, las cuadrillas que responden deben usar su criterio profesional para determinar el método más apropiado y efectivo de realizar la limpieza.

a) **LA SEGURIDAD PRIMERO** - Todo el personal que responde a un derrame de biosólidos debe tomar medidas de seguridad apropiadas y usar equipo de protección personal (p. ej., guantes). Se deben usar gafas de seguridad cuando se utilicen gránulos absorbentes u otros materiales absorbentes sueltos si se levanta polvo debido al viento o al tráfico. Además, personal debidamente capacitado debe tomar medidas para controlar el tráfico, para las cuales el contratista puede recurrir a las fuerzas del orden, como el departamento de policía o CHP.

b) **CONTENER** - ***Los biosólidos derramados deben contenerse y debe evitarse que salgan fuera de la zona del incidente.*** Si se utiliza AGUA en el proceso de recolección, las alcantarillas deben protegerse con materiales como arena, bolsas de arena, escobas, láminas de plástico, tierra, fardos de paja, gránulos absorbentes o cualquier otro material de bloqueo similar.

c) El área del incidente debe devolverse a su condición original o a una mejor.

d) **RECOLECCIÓN** - Los derrames pequeños de material pueden ser recogidos por el conductor, o la cuadrilla que responda, utilizando el equipo de limpieza que se encuentra en el camión (p. ej., pala y escoba, kits de limpieza).

   (i) **¡LA SEGURIDAD PRIMERO!** Use equipo de protección personal; esté atento a su entorno en todo momento.

e) **RAPIDEZ –** Los derrames de material deben atenderse y recogerse rápido. Dependiendo del tamaño, los derrames de material deben recogerse con equipos mecánicos, como una pala cargadora pequeña o un camión con bomba de aspiración. El contratista es, en última instancia, el responsable de proveer el personal y el equipo de limpieza adecuados. Habitualmente, CHP y CalTrans exigirán que CalTrans se encargue de la limpieza de los biosólidos para minimizar el impacto en el tráfico. Sin embargo, si la respuesta se realiza fuera de la jurisdicción de CalTrans, los contratistas deben estar preparados para implementar una respuesta y limpieza rápidas a lo largo de toda la ruta de transporte. Sin embargo, si el contratista no responde en el plazo de una hora, y el derrame ocurre dentro del área de servicio del OCSD, la División de Recolección del OCSD y sus contratistas pueden responder y cobrarle al contratista de biosólidos por cualquier costo incurrido.

f) Pueden agregarse materiales absorbentes, tales como arena, tierra o gránulos absorbentes al área afectada, y luego barrer hasta dejar limpio. Las herramientas y los camiones no deben limpiarse en el lugar del incidente, sino llevarse al sitio de manejo o al OCSD, y limpiarse en la

other similar blocking material. ***No residuals of any kind (water or biosolids) shall be allowed to enter any storm drain facility or be left on the street, median, gutter.***

h) If it is operable and safe, load released biosolids back into the vehicle or separate responding trailer to transport biosolids. Ensure that tarp is operable to cover biosolids. If the vehicle is disabled or unsafe to transport biosolids, the biosolids must be loaded into an alternate vehicle provided by Contractor.

i) The trailer may not be allowed to leave the site if it continues to leak or if unsafe. If this is the case, the Contractor will have to empty the trailer before moving it.

j) Recovered material should be taken to the original destination site (if still recyclable), an alternative landfill, or returned to the OC San Plant No. 1 drying beds at OC San's discretion and with approval from Operations Duty Supervisor (contact Control Center).

k) The Contractor is financially responsible for all OC San resources (including cost of hauling drying bed material to the landfill) and staff time incurred for the incident response after Contractor has taken possession of biosolids at truck loading facility and as such will be back-charged. All OC San personnel should charge time spent managing biosolids releases to the following subledger numbers:

   i) In-plant: "**Biosolids In-Plant Clean-up Operations**" with the subledger number **09812110**.

   ii) Off-site: "**Biosolids Off Site Clean-up Operations**" with the subledger number **09812116**.

estación de carga de biosólidos o en el lugar donde está el lecho de secado.

g) Si se responde con un camión con bomba de aspiración, el contratista tiene la opción de manguerear los biosólidos derramados a la vez que se succionan el agua y los biosólidos en el camión con bomba de aspiración. SIN EMBARGO, LAS BOCAS DE TORMENTA DEBEN ESTAR PROTEGIDAS PARA EVITAR QUE TODA AGUA utilizada en el proceso de recuperación entre ellas. Las bocas de tormenta deben protegerse con materiales como arena, bolsas de arena, escobas, láminas de plástico, tierra, fardos de paja, gránulos absorbentes o cualquier otro material bloqueante similar. ***No se debe permitir que ningún tipo de residuo (agua o biosólidos) ingrese en ninguna instalación de desagüe pluvial, ni que quede en la calle, la línea divisoria o la cuneta.***

h) Si es factible y seguro, los biosólidos derramados deben volverse a cargar en el vehículo o en el tráiler separado para transportar biosólidos que haya llegado. Asegúrese de que haya una lona en buenas condiciones para cubrir los biosólidos. Si el vehículo está averiado o no es seguro para transportar biosólidos, los biosólidos deben cargarse en un vehículo alternativo proporcionado por el contratista.

i) Es posible que no se permita que el tráiler salga del sitio si sigue derramando material o si no es seguro. En ese caso, el contratista tendrá que vaciar el tráiler antes de trasladarlo.

j) El material recuperado debe llevarse al lugar de destino original (si es aún reciclable), a un vertedero alternativo o regresarse a los lechos de secado de la planta n.° 1 del OC San, a discreción del OC San y con la aprobación del supervisor de Operaciones de turno (comunicarse con el Centro de Control).

k) El contratista es responsable del costo de todos los recursos del OC San (incluso del costo de acarrear el material del lecho de secado al vertedero) y del tiempo de personal que se haya empleado para responder al incidente después de que el contratista haya tomado posesión de los biosólidos en la planta de carga de camiones y, por lo tanto, se le cobrará retroactivamente. Todo el personal del OC San debe cobrar por el tiempo empleado en el control de derrames de biosólidos según los siguientes números del libro de contabilidad auxiliar:

   i) Dentro de la planta: “**Operaciones de limpieza de biosólidos dentro de la planta**” con el número de libro de contabilidad auxiliar **09812110**.

   ii) Fuera de la planta: “**Operaciones de limpieza de biosólidos fuera de la planta**” con el número del libro de contabilidad auxiliar **09812116**.

I.D.2. Biosolids Incident Response & Release Recovery Plan (BRRP)

ORANGE COUNTY SANITATION DISTRICT	**Procedure No:** COMP-EOP-005 **Path:** https://ocsdgov.sharepoint.com/:b:/r/sites/Compliance/Shared%20Documents/Biosolids/Portal_Links/EOP_005_Biosolids_Response_and_Recovery.pdf?csf=1&web=1&e=ZOGuul
Title: **Biosolids Incident Response and Release Recovery Plan**	**Approved by:** **Public Affairs Office:** Jennifer Cabral **Risk Management-Safety-Security:** John Frattali **Collections Facilities O&M:** Don Stokes **Environmental Services:** Tom Meregillano **Operations:** Jim Spears

Procedure Revision History

Revision	Date	Approval	
0	5/21/02	Approved	
1	10/7/04	Approved	
2	10/1/07	Draft	
3	4/21/11	Approved	Incorporate Notification changes, change of title, add internal response procedure. Changed procedure number.
4	1/27/14	Approved	Updated contact information, and notification and response procedure.
5	5/30/17	Approved	Updated out of date division information and removed the use of division numbers since they change too frequently. Streamlined Collections' Responsibilities. Moved several group's Section 4 procedures table instructions into Section 3. Responsibilities in order to streamline and simplify the procedure table. Removed requirement for separate Contractor emergency response plan. Updated with new websites and workflows, and expanded References section.
6	5/8/18		Allow Contractors to report information directly to Compliance (avoiding Control Center documentation) if release is not in OC San service area. SendWordNow is still a communication tool, but not required on every release as it depends on various factors including location and social, traffic, media, and environmental impacts.
7	1/30/20	Approved	Updating miscellaneous links and contacts including Collection Facilities O&M contact
8	4/7/21	Draft	Updating OC San's logo and OC San to OC San name reference
9	**12/17/21**	**DRAFT**	**Incorporating earlier draft changes. Removing FEMA training requirement. Compliance won't use SendWordNow, but can coordinate with other divisions such as Safety or PAO if it needs to be used.**

1. PURPOSE AND SCOPE

Provides a procedure for responding to biosolids incidents and releases within OC San's facilities as well as those during transit to reuse/disposal facilities, with the goal of preventing and safely recovering releases in the shortest time possible. Biosolids are non-hazardous, but releases can impact traffic, cause road hazards (slick surface), and potentially contaminate storm drains and waterways if they are improperly cleaned-up.

2. DEFINITIONS

A. **Biosolids:** Treated, non-hazardous solids from the wastewater treatment process contain organic matter, plant nutrients such as nitrogen and phosphorus, and low levels of metals and pathogenic organisms. Biosolids (including digester cleanings) are regulated at the federal, state, and local levels, and are safe when used in accordance with these regulations. Precautionary hygienic measures include frequent handwashing, avoiding ingestion, and preventing exposure to the mucous membranes of the eyes, nose, and mouth.

B. **Contractor:** Third-party entity with whom OC San has an agreement for the safe transportation of biosolids from OC San's facilities to end use sites.

C. **Incident:** An occurrence during the handling or transporting of biosolids that does not conform to normal operating procedures and has potential to jeopardize public safety or the environment (e.g., traffic accident).

D. **Release:** An accidental discharge of biosolids from Contractor's vehicle during hauling. The vast majority of biosolids releases do not represent a public threat because biosolids are quickly and completely contained. Upon full and proper recovery of the biosolids, there should be little to no negative impacts to traffic, water ways, environment, and public health. It has been observed that the incident locations are often left cleaner than before the incident (additional trash and debris also recovered).

   In the rare instance that biosolids threaten water ways, environment, or public health, immediate notifications will be given to impacted regulatory bodies.

3. RESPONSIBILITIES

The following is an overview of responsibilities followed by specific information on Procedures, Notifications, Documentation, and Hauler Inspection.

A. **Collections Facilities O&M:** Within OC San's Service Area, Collections Facilities O&M will assist and coordinate with local city agencies and private contractor(s) as needed. Assistance may include traffic control and aid in the recovery and cleanup of biosolids.

B. **Compliance:** The Environmental Services Department's Biosolids Team is responsible for:

- Maintaining associated biosolids incident procedures, training tools, communicating changes, and periodically inspecting haulers to verify preparation.
- Following-up on reported incidents and Contractor's recovery of biosolids. As necessary, especially if it is within a 2-hour drive from OC San, respond to release location to document and communicate information.
- Providing initial notification to biosolids release notification distribution list (internal stakeholders) using available communication tools such as email, text, and coordinating with PAO and Safety to utilize OC San's SendWordNow account if appropriate for large incidents.
- The Environmental Services Director and PAO will evaluate how to inform the General Manager and the Board.
- Providing incident updates, summaries, and reporting to internal and external stakeholders such as incident responders and regulatory agencies.
- If biosolids are released on a freeway, Compliance staff will track and confirm reported information on available websites such as: sigalert.com, http://video.dot.ca.gov/, and http://quickmap.dot.ca.gov/.
- Collecting, documenting, and tracking all available incident details, contributing and root causes, and corrective and preventive actions.
- Providing required written report to regulatory agencies within 5 days of all releases.
- Back-charging the Contractor as needed for costs incurred due to recovery efforts.

C. **Contractor:** Contractor is responsible for supplying adequate vehicles and equipment for the clean and safe hauling of biosolids from the truck loading stations at both OC San plants to the final end-use destination and meeting all federal, state, local, and OC San requirements as contractually required. This includes inspecting trailers prior to departure to prevent incidents from occurring. Training of contracted drivers shall result in an in-depth understanding of roles and responsibilities, including but not limited to safe biosolids handling, emergency response, release recovery, and traffic control safety.

   Contractor is responsible for immediately responding to a release by stopping the vehicle, notifying necessary agencies such as OC San and CHP, resolving the cause of the release, and recovering released material. The Contractor must abide by OC San's response plan herein and have way of addressing any items not covered by OC San's plan. In most contractor transportation incidents, especially where traffic lanes are impacted, CHP requires CalTrans to respond and clean-up the release. CalTrans will back-charge Contractor for their clean-up costs.

   The Contractor is responsible for paying for all biosolids cleanup resources and equipment, final disposal fees for biosolids that cannot be recycled because of the release, and reimbursing OC San for any OC San resources and charges

incurred as a result of an incident. Contractors are required to provide full reporting and detailed information to OC San regarding the incident investigation including root cause of incident, corrective actions, and preventive actions to prevent repeat occurrences.

D. **Operations:** Plant No. 1 Control Center is responsible for initially receiving and documenting (Section 6) the incident information from the person reporting the incident (e.g., truck driver, dispatcher, company liaison) within OC San's service area or if Compliance has not returned the contractor's call within 30 minutes.

   Control Center gathers available information and notifies the on-duty Operations Supervisor and Compliance staff by reaching a person or leaving messages on all available contact numbers. Control Center assists in communication and gathering needed OC San resources.

   If the incident is processed through the Control Center, Operations documents the information as described in Section 6 Control Center Incident Documentation below.

   Both Plant No. 1 and No. 2 Operations divisions are responsible for assisting with the recovery of onsite releases.

E. **Public Affairs Office (PAO):** The Public Affairs Office is responsible for handling any contact with the media, Executive Management Team and Board of Directors regarding a biosolids release. Public Affairs is notified of all releases. If necessary, they will respond to incident site, especially as related to media and community relations at the scene. Public Affairs uses resources in the References section to ensure the appropriate message points on biosolids, including the summarized set of speaking points were developed for public messaging during an incident. Participate in incident management as needed.

F. **Risk Management-Safety-Security:** This group maintains the Integrated Emergency Response Plan (IERP) and coordinates related training. They also establish the Emergency Operations Center (EOC) which provides direction, logistics, financing, and procurement support needed by the involved divisions. Respond, if necessary, to Safety-related concerns, especially upon injuries or deaths. This group participates in incident management as needed.

4. PROCEDURES

A. Procedure Matrix for Responding Parties in *Offsite* Biosolids Release Clean-up Response

Step No.	Driver	Driver's Dispatcher or Supervisor
1.	**STOP AND CONTAIN** – When safe to do so, the Driver is to stop the vehicle ***immediately*** and park in a safe location in order to prevent spreading and distributing the biosolids. Halt source of biosolids being released.	**RESPOND** -The dispatcher or supervisor should advise the driver to proceed with material recovery using the equipment in the truck (e.g., shovel and broom) and Cleanup Guidelines (Section C) below, as long as it is safe to do so. If additional equipment is needed, the dispatcher or supervisor will coordinate with CalTrans or contract service provider for assistance. The dispatcher will request an estimated mobilization and arrival time from the contract services representatives.
2.	**SAFETY** - Driver is to maintain his own safety during all steps of this procedure, including while demarcating the incident site using traffic cones, reflectors, and/or flares.	**NOTIFY** -**The dispatcher or supervisor must notify CHP or similar applicable agency (if outside OC San facilities in a public right-of-way) as needed, as well as contacting OC San's Control Center (714) 593-7025 *within 30 min. of learning of the release*, and report the following:** • Incident location • Time of incident • Water ways impacted if any • Approximate amount of the material released • Responding resources and agencies • Additional resources needed equipment If the release incident occurs outside OC San's service area and OC San will not be directly responding to the incident location, the dispatcher can coordinate directly with Compliance who will track and communicate the relevant information to pertinent personnel. **If the dispatcher or driver leave a voice mail for Compliance staff and don't get a call back within 30 minutes, they will need to notify the Control Center.**
3.	**NOTIFY** – Driver will notify dispatcher or supervisor and report the incident time, location, approximate amount of the release, and any additional equipment that may be needed to recover the material and clean the area. If necessary for traffic control, the driver or dispatcher shall also notify highway patrol.	Keep OC San apprised of updates either through Control Center or Biosolids Compliance staff contact (see Reference section, IERP Biosolids Contact List). Provide driver's onsite before and after clean-up pictures to Compliance.
4.	If possible and safe, the driver will take pictures of the incident site before and after clean-up from multiple perspectives and provide to Dispatcher or Supervisor.	

Step No.	Driver	Driver's Dispatcher or Supervisor
5.	See Clean-up Guidelines below (Section C) for how driver is to assist with material recovery and site clean-up.	

B. **Procedure Matrix for Responding Parties in *In-Plant* Biosolids Release Clean-up Response**

Step No.	Driver	Driver's Dispatcher or Supervisor	OC San Control Center / Operations Supervisor	OC San Compliance: Biosolids staff
1.	Driver is to stop the vehicle ***immediately*** after identifying biosolids have been released, and park in a safe location in order to prevent spreading the biosolids. If necessary, stop the source of biosolids release.	The dispatcher or supervisor notifies OC San if OC San is not already responding.	**Stop the driver as soon as the release is identified** and notify On-Duty Supervisor and Compliance immediately.	Upon notification, Compliance will gather available information and send notification out to "Spill Notification Biosolids Contact List Guidance" list (see References section).
2.	Driver will notify someone from Operations. If no Operators are available, driver will call **OC San's Control Center at (714) 593-7025 to report release.** Driver will also notify his dispatcher or supervisor and report the incident time, location, and the approximate amount of the release.	The dispatcher or supervisor advises the driver to assist with the material recovery and site clean-up using the equipment in the truck (e.g., shovel and broom) and Clean-up Guidelines in Section C below.	Operations staff assist driver contain and clean up biosolids. If necessary, Operations will direct the leaky trailer to the drying beds to unload. Note that the biosolids unloaded in the drying beds need to be kept separate from the grit dumps. Contact On-Duty Operations Supervisor. If at Plant 2, the source of release must be secured before load can be taken to Plant 1 to be placed in drying beds. If unable to contain source of release, load may be taken to the Operations-designated emergency site at Plant No 2. Coordination with Engineering Construction Supervisor may be necessary due to changing construction staging areas.	Compliance may respond to the incident location. Compliance staff may help coordinate resources to ensure biosolids are properly recovered and handled.
3.	Driver will recover released material as per OC San Operation's instructions.	Dispatcher stays in contact with driver and OC San staff for decision making and support, including additional resources needed at the	See Clean-up Guidelines (Section C) below.	See Clean-up Guidelines (Section C) below.

Step No.	Driver	Driver's Dispatcher or Supervisor	OC San Control Center / Operations Supervisor	OC San Compliance: Biosolids staff
		Contractor's expense, until release has been recovered.		
4.	See Cleanup Guidelines (Section C) below for how driver is to assist with material recovery and site clean-up.		Operations fills out a "Call Center Complaint" and assigns it to Compliance.	Compile, investigate, and document all information, including root cause and corrective and preventive actions.

C. **Cleanup Guidelines**

Note: The following are general, recommended guidelines for material recovery and site clean-up, with the exception of any "must" statements. Because the circumstances and equipment availability are unique for each biosolids release, responding crews must use their professional judgment to determine the most appropriate and effective method for clean-up.

a) **SAFETY FIRST** - All personnel responding to a biosolids release must take appropriate safety measures and wear personal protection equipment (e.g., gloves). Safety glasses and a mask must be worn when using kitty litter or loose absorbent if dust is present due to wind or traffic. Traffic control measures must also be taken by appropriately trained personnel, on which the Contractor may rely on local enforcement agencies such as police department or CHP.

b) **CONTAIN** - ***Released biosolids must be contained and prevented from migrating from the incident area.*** If ANY WATER is used in the recovery process, storm drains must be protected with such materials as sand, sandbags, brooms, plastic sheeting, dirt, straw bales, kitty litter, or any other similar blocking material.

c) The incident area must be restored to its original condition or better.

d) **RECOVER** - Small releases can be recovered by the driver or responding crew using the clean-up equipment in the truck (e.g., shovel and broom, clean-up kits)

   (i) **SAFETY FIRST!** Wear personal protective equipment; be mindful of your surroundings at all times.

e) **EXPEDITE –** Releases must be responded to and recovered quickly! Depending on the size, releases can be recovered with mechanical equipment such as a small skip loader or vacuum truck. Contractor is ultimately responsible for providing the appropriate clean-up equipment and personnel. Typically, CHP and CalTrans will require CalTrans to clean-up the biosolids in order to minimize traffic impacts. However, if a response occurs outside of CalTrans jurisdiction, contractors must be prepared to implement an expedient response and clean-up along the entire delivery route. However, if contractor fails to respond within one hour, and the release occurs within OC San service area, OC San's Collections and its contractors may respond and back-charge the biosolids Contractor for any costs incurred.

f) Absorbents, such as sand, dirt or kitty litter can be added to the affected area, and swept clean. Tools or trucks should not be cleaned at the incident location, but brought to the management site or OC San and cleaned either at the biosolids loading station or in the drying bed location.

g) If responding with a vacuum truck, the Contractor has the option of hosing down the released biosolids while sucking up the water and biosolids into a vacuum truck. HOWEVER, STORM DRAINS MUST BE PROTECTED TO PREVENT ANY WATER used in the recovery process from entering the storm drains. Protect storm drains with such materials as sand, sandbags, brooms, plastic sheeting, dirt, straw bales, kitty litter, or any

other similar blocking material. ***No residuals of any kind (water or biosolids) shall be allowed to enter any storm drain facility or be left on the street, median, gutter.***

h) If it is operable and safe, load released biosolids back into the vehicle or separate responding trailer to transport biosolids. Ensure that tarp is operable to cover biosolids. If the vehicle is disabled or unsafe to transport biosolids, the biosolids must be loaded into an alternate vehicle provided by Contractor.

i) The trailer may not be allowed to leave the site if it continues to leak or if unsafe. If this is the case, the Contractor will have to empty the trailer before moving it.

j) Recovered material should be taken to the original destination site (if still recyclable), an alternative landfill, or returned to the OC San Plant No. 1 drying beds at OC San's discretion and with approval from Operations Duty Supervisor (contact Control Center).

k) The Contractor is financially responsible for all OC San resources (including cost of hauling drying bed material to the landfill) and staff time incurred for the incident response after Contractor has taken possession of biosolids at truck loading facility and as such will be back-charged. All OC San personnel should charge time spent managing biosolids releases to the following subledger numbers:

   i) In-plant: "**Biosolids In-Plant Clean-up Operations**" with the subledger number **09812110**.

   ii) Off-site: "**Biosolids Off Site Clean-up Operations**" with the subledger number **09812116**.

5) NOTIFICATIONS

A) The Biosolids Contact List has been centralized in the OC San Integrated Emergency Response Plan (IERP), Biosolids Section 8 (see table of contents for location of Biosolids Contact List), in which this document is embedded.

B) In the rare instance that biosolids threaten water ways, environment, or public health, Compliance will immediately notify the pertinent regulatory agencies within 24 hours by phone or e-mail.

C) For non-threatening releases, Compliance will submit a written report within 5 working days of learning of the incident. See related IERP, Regulatory Notifications flowchart, Compliance Staff Guidance Release Response instructions, and Spill Notification Biosolids Contact List Guidance linked in Resources section.

6) CONTROL CENTER INCIDENT DOCUMENTATION

A) Dispatcher or driver must notify OC San of any incident as soon as possible, within 30 minutes from time of the incident. If the dispatcher or driver leave a voice mail for Compliance staff and don't get a call back within 30 minutes, they will need to notify the Control Center.

B) If the incident is processed through the Control Center, Operations documents the incident through the Control Center's **Call Center app (under Apps in** SharePoint). Upon notification from Contractor, Control Center staff will start a new complaint form in the Call Center database. If the incident is processed through Compliance, they will use their own reporting tools as explained in Section 7 below.

a) Go to the Call Center SharePoint site (see References section) by opening a web browser, clicking on Apps > Call Center > and add new complaint. A web form will open.

b) Fill out as much information as available.

(i) **Incident Date:** The date and time the incident occurred.

(ii) **Initiated From:** In-house or external source of information

(iii) **Problem Type:** Choose "Biosolids Spill"

(iv) **Problem Description:** Provide a summary of information provided during initial notification. Information should include (if available):

(a) Person reporting incident

(b) Incident location (here or in field below)

(c) Approximate amount of biosolids released

(d) Who is on site and/or who is responding

(e) Name of Biosolids Contractor

(v) **Locations:** Choose "Outside of OC San Service" if outside the plants, and not within OC San's service area.

(vi) **Stand-by Call Out:** Check only if in OC San's service area and Collections responded.

(vii) **Responsible Division/Department:** Fill out Operations if there are any Operations activities to report. Fill out Compliance for at least one of the Correction / Action assignments. You can add additional assignments by checking "Yes" under "Task History."

(viii) **Action Assigned to**: Put in the name of the appropriate staff that was notified and who will be filling out the Action Description.

(ix) **Action Description:** Operations Supervisor and/or Compliance will enter the pertinent information. Compliance will refer readers to our Biosolids Issue Tracker for further details and later developments.

(x) **Attachments**: Click "Add Attachment" if needed (such as photos).

c) Upon completion, click '**Save'** on the bottom of the page. This will save changes and initiate Biosolids Issue Tracker (see Resources section).

C) For an **in-plant release**, Operations will fill out an **incident report** and forward it to Compliance. See the Compliance Staff Guidance Release Response instructions linked in Resources section.

7) COMPLIANCE INCIDENT DOCUMENTATION & NOTIFICATIONS

A) Compliance staff will send immediate notification to "Spill Notification Biosolids Contact List Guidance" list (see References section) based on the type of incident and its proximity to OC San's service area and its social and environmental impacts and if the news media are involved.

B) Compliance staff will track the incident through the Biosolids Issue Tracker linked in Resources section, use this information to produce a final report, and forward it to the appropriate stakeholders.

C) See the Compliance Staff Guidance Release Response instructions linked in Resources section.

8) OC SAN HAULER INSPECTIONS

A) A copy of OC San's Biosolids Hauler Information Card (see Resources section) that includes this SOP must be carried by haulers at all times.

B) OC San staff periodically inspects Contractor's trucks for the presence of the hauler information ring and procedures and emergency equipment (see Biosolids Contractor Requirements in References section below). Compliance staff quiz drivers on release response procedures to confirm their understanding.

C) OC San staff periodically reviews the Contractor training records.

9) REFERENCES

A) Biosolids Contact List, OC San Integrated Emergency Response Plan (IERP), Biosolids Section 8 (including Biosolids Contact List):
http://myocsd/hr/safety/IERP/Published%20IERP/Volume%20II/08-Biosolids.pdf

B) Control Center Call Center SharePoint Site:
http://apps/forms/callcenter/SitePages/Home.aspx

C) Biosolids Issue Tracker – Biosolids Release view:
https://ocsdgov.sharepoint.com/sites/Compliance/Lists/Issue%20Tracking/PreInspection.aspx?viewid=d74d1463%2Db47c%2D4f1f%2Db00e%2D96026e7b9faa

D) Biosolids emergency messages for PAO:
https://ocsdgov.sharepoint.com/:b:/r/sites/Compliance/Shared%20Documents/Biosolids/Portal_Links/05-Emergency_Incidents/PAO%20-%20EMERGENCY_INCIDENT_MESSAGE_POINTS.pdf?csf=1&web=1&e=nxrkAI

E) Biosolids fact sheet: http://www.ocsan.gov/bpfactsheet

F) Biosolids Release Short Reference Checklist:
H:\dept\es\610\Compliance\Biosolids\Goals_Budget_Admin\Procedures\Flowcharts\Biosolids_Release_Short_Reference_Checklist.pdf

G) Compliance Staff Guidance Release Response:
\\share01\ocsd\dept\es\610\Compliance\Biosolids\Goals_Budget_Admin\Procedures\Emergencies\Compliance_Staff_Guidance_Release_Response.docx

H) Notification Flowchart:
\\share01\ocsd\dept\es\610\Compliance\Biosolids\Goals_Budget_Admin\Procedures\Flowcharts\Regulatory_Notifications.pdf

I) Spill Notification Biosolids Contact List Guidance:
\\share01\ocsd\dept\es\610\Compliance\Biosolids\Goals_Budget_Admin\Procedures\Emergencies\Spill_Notification_Biosolids_Contact_List_Guidance.xlsx

J) Biosolids Contractor Requirements, including Biosolids Hauling requirements:
www.ocsan.gov/bcr

K) OC San's Biosolids Hauler Information Card/Ring:
https://ocsdgov.sharepoint.com/:b:/r/sites/Compliance/Shared%20Documents/Biosolids/Portal_Links/03-Distribution_End-use_Contractors/Hauler%20Emergency%20%26%20Biosolids%20Info%20cards.pdf?csf=1&web=1&e=lAP0 m7

II.A.1. Contractor Biosolids Management Plan Requirements

Note to Contractor: This document is an **example** template Biosolids Management Plan (BMP). It is the Contractors responsibility to:

- Document compliance with all regulations including anything beyond this example template.
- Review and update all language to ensure it is accurate and reflective of the Contractor's operations or submit an equivalent document.
- Ensure all key elements are addressed.
- Update areas in RED FONT.
- Maintain the Biosolids Management Plan and submit changes and updates to OC San with the monthly report.
- Ensure that all key elements are integrated into the Contractor's management system, and are subject to OC San inspections and audits.
- Ensure that staff are appropriately trained.

The Contractor's version can cross-reference other existing documents if they are submitted to OC San as appendices or under separate cover.

BIOSOLIDS MANAGEMENT PLAN

Name of Contractor	**Path:** Location where file resides
Subject: Biosolids Management Plan	**Effective Date:** Date it will become effective
Approved by: Name of Person Responsible	**Supersedes Date:** Effective date of previous document

I. Introduction

Name of Contractor land applies biosolids to agriculture land for use as a fertilizer/soil amendment. This Biosolids Management Plan has been written to document the procedures Name of Contractor follows for the beneficial use of plant macro and miconutrients, micronutrients, and organic matter present in biosolids to grow crops in accordance with federal, state, and local regulations.

A. General Information

Biosolids are the solids isolated during the processing of municipal wastewater and are further treated to reduce the content of pathogen microorganisms. Biosolids are a beneficial source of organic matter, nitrogen, phosphorus, and micronutrients for plants. Biosolids are valuable to agriculture, silviculture, horticulture, and land reclamation activities because they improve soil productivity.

Land application of biosolids has many benefits to society and farmers:

- Provides a safe and productive end-use for biosolids, a ubiquitous material that would otherwise be disposed of in a landfill
- Improves the organic matter content of poor soils
- Replenish soil nutrients taken up by crops
- Is an alternative to chemical fertilizers that could potentially leach nutrients into local ground waters

This plan describes the biosolids operations in a manner that maximizes its agricultural effectiveness and reduces potential nuisance; describes the biosolids characteristics; monitoring program to assure compliance with federal, state, and local requirements; and identifies the communication channels open to interested parties that are used to improve biosolids management. This plan shall be updated to reflect any significant change in operations, including but not limited to, change of site locations (not fields within a site), management practices, contact information, process, controls, monitoring, recordkeeping, etc.

B. Summary of Operations

Name of Contractor receives dewatered Class B[1] biosolids from municipal wastewater treatment plants and transports them to Name location and address. Once at the site, the biosolids are land applied in accordance with local ordinances. This end-use site is specifically permitted for this use. Only feed and fiber crops are planted in these locations. Inspections of the sites are done with or without any notice by the generators, health officers, regulators, contractors, and auditors that verify that this plan is followed. Biosolids are regulated through the Code of Federal Regulations, Section 40, Part 503 (40 CFR 503) which sets minimum standards that must be met before the material can be land applied.

C. Company Biosolids Policy

Name of Contractor is committed to continual improvement using best management practices and compliance with regulations while providing biosolids services to municipal wastewater treatment facilities. Name of Contractor accomplishes this by adopting the California Water Environment Association (CWEA) Manual of Good Practice and the National Biosolids Partnership (NBP) Code of Good Practice.

D. Description of the Site

Name of Farm operates on amount acres in county and state of which only amount acres are applied with biosolids. The application sites are along Street Name and Street Name. The closest neighbor is

[1] **Class B Biosolids**: are the solids processed at the municipal wastewater treatment plants to a level that will sufficiently protect human health and the environment from pathogenic microorganisms and are managed by stringent controls, such as the type of allowable crops, 30-day public and animal restrictions, thorough reporting and recordkeeping, among others (Class B pathogen requirements and site restriction in 503.32 (b)). Class B biosolids use with these restrictions is considered to be equal to meeting Class A requirements without the restrictions as assessed through the 40 CFR 503 risk analysis. The appearance and nuisance factors depend on the type of process used to achieve the destruction of volatile solids and pathogens in biosolids.

Class A Biosolids: are the solids processed at or outside municipal wastewater treatment plants to meet the most stringent level of pathogen control set by the 40 CFR 503 Rule (section 503.32(a)), before land application and are expected to not be subject to further scrutiny if the pathogen and trace elements testing satisfies the provisions therein. The appearance and nuisance factors of the final product depend on the type of process used to achieve the destruction of pathogens.

located about amount miles to the Direction of the closest application site**.** Typical crops grown at this site include name crops.

II. 2. Biosolids

A. General Characteristics

Name of Contractor accepts biosolids from other municipal generators, and Orange County Sanitation District. The above generators process their biosolids through anaerobic digestion followed by dewatering. The consistency of the material is that of a paste with a moisture content that varies between 15% and 30%. Biosolids contain large amounts of organic matter to which plant macronutrients are bound, such as nitrogen and phosphorous, as well as plant micronutrients, such as copper and selenium. Biosolids, on an average dry basis, show a plant fertilizer value of 4.5 : 2.5 : <1 nitrogen-phosphorous-potassium or NPK. Name of Contractor obtains necessary information on biosolids quality from the Generators.

According to the California Water Resources Control Board's General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment, the benefits derived from biosolids used as a soil amendment are as follows:

a. Nitrogen is a basic nutrient for plant growth. In biosolids, nitrogen is present as ammonia, nitrates, and organic nitrogen at concentrations from 2 to 10% by weight on a dry weight basis. The ammonia and nitrate forms of nitrogen are readily available for plant usage. Organic nitrogen is released slowly (mineralized) over many months, providing a continuous supply of nitrogen for crops and minimizing the potential for movement of nitrogen to the ground water. Total nitrogen available to the plant at any given time is less than the total of these mineral forms due to the dynamic cycling of nitrogen in the soil.

b. Phosphorus is a basic nutrient for plant growth and is present in biosolids. Phosphorous tends to bind to soil particles, especially clays, which prevent it from migrating from the point of application.

c. Micronutrients, such as copper, iron, manganese, molybdenum, and zinc are necessary for plant growth and are also present in biosolids.

d. The addition of organic matter to soils enhances soil structure, increases water retention capability, promotes soil aeration and aggregation, and reduces bulk density. Soil porosity can be lost at sites under continuous cultivation and are critical in maintaining the necessary aerobic environment within the plant root zone. Additional water retention can reduce the need for frequent water applications and can facilitate water conservation.

f. Lime, in the form of calcium oxide, can be used to treat biosolids by raising its pH. Liming agents can improve the permeability of the soils. Higher pH soils have a greater propensity to bind most heavy metals, decreasing even more the chance of metal migration.

The agricultural use of biosolids as proposed is environmentally safe. The U. S. Environmental Protection Agency (USEPA) has promulgated 40 CFR Part 503 for the use of biosolids as a soil amendment. These regulations establish ceiling concentrations for metals, pathogen and vector attraction reduction standards; management criteria for the protection of water quality and public

health; and annual and cumulative discharge limitations of persistent pollutants (such as heavy metals) to land for the protection of livestock, crop, and human health and water quality. The requirements of 40 CFR Part 503 are based on a risk-based evaluation using the worst case scenario under 14 different pathways.

B. Application Rates

Application rates are based on the crop nitrogen requirement/demand expressed in milligrams of nitrogen per kilogram. Nitrogen content in biosolids is determined from the average shown in the generator's monthly report. Each crop has a specific nutrient requirement determined in literature (e.g. Western Fertilizer Handbook). Biosolids is applied to a site in enough quantity in order to fulfill this need, also known as agronomic rate. Table 1 summarizes the plant nutrient requirement for the most common crops.

Table 1 – Crop Agronomic Rates

Crop	Yield (tons)	Agronomic Rate (lb/acre)		
		N	P	K
Barley	2.5	160	60	160
Oats	1.6	115	40	145
Wheat	3.0	175	70	200
Alfalfa	8.0	480	95	480
Milo				
Bermuda				

Source: Western Fertilizer Handbook, 8th Ed. 1995

a. Crop Application Rate

The application rate for each particular site is first estimated from the site area, the crop to be planted, and the average nutrient content in biosolids. The results of the biosolids from different sources and a projection of the quantities of biosolids loads that are expected from each source are factored into the rate calculation.

The primary factors used to calculate the application rate are the solids and nitrogen content of the biosolids, the nitrogen mineralization and volatilization rates, and the nitrogen needs for the crop to be planted (also known as "plant available nitrogen" or PAN). Application rates for crops subsequent to the first crop application may be reduced by the amount of nitrogen carryover when biosolids is applied to the same field in successive cropping seasons. If that is the case, a carryover of 20% is estimated for the PAN calculations.

Name of Contractor integrates the process of determining target application rates and nutrient loading limits with a computerized tracking system. The site manager determines target application rates after consultation with the farm manager. The site manager determines the desired nitrogen and other nutrient levels utilizing soil and crop analyses, crop yield, and standard agronomic tables. They input this data into an electronic calculation table for a determination of the appropriate biosolids application rate required in order to reach the desired soil fertility levels. The system

utilizes current biosolids analysis data to compute the target application rate needed to meet the fertility goals while maintaining a safe level of trace metals loading following an algorithm based on the 40 CFR 503 regulations.

Nitrogen has the potential of leaching if available in amounts greater than crop uptake. Biosolids application rates are determined by the crop's nitrogen requirement. From the nutrient analysis, the pounds of plant available nitrogen (PAN) is determined. Pounds of (PAN) are calculated from the following formula:

$$PAN/dry\ ton = [(NO_3\text{-}) + (NH_3)\ 0.5 + (Organic\ N)\ 0.2]\ 0.002$$

where NO_3-, NH_3, and Organic N are expressed in parts per million. This calculation assumes 50% of ammonia (NH_3) volatilizes and 20% of organic mineralizes as available nitrogen.

Using the PAN per dry ton and the percent solids of the biosolids, the PAN per wet ton is determined using the following calculation:

$$PAN/dry\ ton \times percent\ solids/100 = PAN/wet\ ton$$

The PAN per wet ton is used to determine the application rate of biosolids per acre using the crop's nitrogen requirement. This estimate is provided to the field application foreman.

All biosolids used for this land application program are analyzed and certified by the wastewater treatment plant (WWTP) at a frequency detailed in 40 CFR Part 503.16. These results are reviewed by Name of Contractor and submitted to the Name of regulating agency for approval before the land application of biosolids begins. For biosolids to be land applied as a soil amendment, the following standards are met:

A. Biosolids must meet the Class B pathogen reduction standards listed in 40 CFR Part 503.32.
B. Biosolids must meet vector attraction reduction standards listed in 40 CFR Part 503.33.
C. Biosolids must have concentrations that do not exceed the ceiling concentrations shown in Table 2
D. Biosolids are not applied to any fields in excess of the calculated application rate.

Table 2 - Ceiling Pollutant Concentrations

Constituent	**Ceiling concentration** (mg/kg dry weight)
Arsenic	75
Cadmium	85
Chromium	3,000
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

Source: 40 CFR 503.13 Table 1

The 40 CFR Part 503 also sets more stringent metal limits for biosolids, which requires no cumulative metal tracking (Table 3).

Table 3 – Exceptional Quality Pollutant Concentrations

Pollutant	**Monthly Average Concentration** (mg/kg dry weight)
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2,800

Source: 40 CFR 503.13 Table 3

Any biosolids meeting the above pollutant concentrations will not be applied to a site on which the annual pollutant loading rates set in Table 4 are exceeded.

Table 4 – Maximum Annual Pollutant Loading Rates

Pollutant	**Loading Rate** (kg/hectare)
Arsenic	2.0
Cadmium	1.9
Copper	75
Lead	15
Mercury	0.85

Pollutant	Loading Rate (kg/hectare)
Nickel	21
Selenium	5
Zinc	140

Source: 40 CFR 503.23 Table 2

b. Tracking Site Lifetime Application

The tracking of site lifetime application is not required by 40 CFR 503 for exceptional quality biosolids; however, this tracking is routinely done. The potential life for biosolids application for a particular site is calculated and reported on a yearly basis.

III. Management Plan

A. General Operating Constraints

Land application of biosolids is regulated at the federal level by the 40 CFR 503 Rule, which defines the minimum standards required for land application of biosolids (defining processing methods, which determine the vector attraction reduction and the pathogen level, as well as defining the concentration of metals, crops allowed, and site access restrictions). At the state level, biosolids are regulated by the Name of regulating agency, who issues the applicable permits.

In California, biosolids are regulated by the State Water Resources Control Board General Order No. 2004-12-DWQ, which refines the federal restrictions based on an extensive environmental impact report (defining wind speed and ground slope limitations, defining setbacks from properties, dwellings, and various water sources, including groundwater). In Arizona, biosolids are regulated by the Department of Environmental Quality Article 10 Arizona Pollutant Discharge Elimination System Disposal, Use and Transportation of Biosolids, which governs the land application of biosolids.

At the local level, counties have promulgated ordinances that restrict or ban the use of biosolids. (e.g., Kern and Kings ordinances). All land application sites have the applicable permits with the county or state agency that oversees this activity. (provide details).

The operation is finally governed by service level agreements signed between Name of Contractor and its customers. These contracts define the minimum requirements. Because Name of Contractor may service many customers simultaneously, it will apply the contract conditions that are most stringent to its operation.

B. Management Practices

Land application follows harvest of any standing crop and the disking of the site to remove any furrows. The project manager then flags any restricted areas by measuring the appropriate setback as defined in the California General Order, ADEQ Article 10 or the local requirement, whichever applies.

The following management practices will be followed:

- Biosolids will be applied only in accordance with all applicable federal, state, and local requirements.
- Biosolids will not be applied at an application rate greater than the agronomic rate of the crop planned for the site

- Biosolids will not be applied to land that is flooded
- Biosolids will not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.
- Biosolids will be incorporated into the soil within 24 hours of application, preferably sooner
- Every site will grow a viable crop prior to any additional biosolids application
- Biosolids will not be applied to a slope greater than 6% unless operating under AZPDES permit or a permit issued under CWA section 402.
- Biosolids will not be applied within 33 feet (10 meters) from waters of the United States.

C. Preventive Maintenance Plan

Contractor will describe, or reference, their preventive maintenance plan for other equipment used for the management of biosolids.

D. Equipment Utilized

Name of Contractor or its subcontractors provide all the equipment used to transport and to apply biosolids. Biosolids are transported in watertight, covered type of semi-trailers pulled by tandem-axle truck tractors. The net volume capacity of the trailers is between 40 and 54 cubic yards, which correspond to a net weight capacity of between 22 and 27 tons. The trailers are equipped with roll tarps that are secured by several ratchet tie-straps.

Biosolids are unloaded at the designated land application site. Biosolids are then loaded onto spreaders pulled by a standard agricultural tractor using a front-end loader. A disk, also pulled by a standard agricultural tractor, incorporates the biosolids into the soil. Water trucks are used to supply the water for washing the biosolids residues off the trailers and to water the access roads to the fields to reduce dust. Water pumps feeding radial sprinkle irrigation systems are used to water the fields throughout the growing season.

E. Transportation – Information is submitted under separate cover under "Biosolids Hauling Plan"

F. Unloading and Washing

When a truck arrives at the designated field, the biosolids are unloaded onto the designated area and the interior of the trailer thoroughly washed. Before leaving, the trailer is tarped and then the exterior washed clean of any biosolids residues.

G. Storage

During periods of inclement weather (i.e. rainfall greater than ¼ inch), the material cannot be spread and must be temporarily stored at the site. Loads will be diverted to a designated storage field. During storage of any length for non-Class A biosolids, access is restricted to the public and to domestic animals.

H. Spreading

Once the spreader is loaded with biosolids material and is at the designated site, it spreads the material uniformly on the land until the application rate for the planned crop is reached. A rough application rate can be calculated by dividing the capacity of the spreader by the area spread by the load (multiplying the distance traveled by the average broadcast distance). Depending on the soil

conditions, the desired application rate can be divided in two as described below.

I. Incorporation

After spreading, the material is disked into the soil with a disk pulled by an agricultural tractor. For certain soil conditions, and to assure better blending and incorporation into the soil, the material can be spread in two complete cycles of spreading and incorporation. Prompt and adequate incorporation is done to avoid public nuisances, such as odors and flies.

J. Watering, Planting, and Cropping

Once a field has been adequately fertilized and amended with biosolids, it is ready for leveling, furrowing (if required), watering, and seeding. The field is watered and cultivated according to the crop needs. Once the crop is ripe, it is harvested and sold. Records of crop sales are kept in Name of Contractor field office and are made available upon request. [Note to Contractor: OC San's 2021 NPDES permit requires: If biosolids were land applied, the Discharger shall have the person applying the biosolids submit a pdf report to USEPA and State agency showing the name of each field; location, ownership, size in acres; the dates of applications, **seedings, harvesting; the tonnage applied to field, in actual and dry weight;** the calculated Plant Available Nitrogen; and copies of applier's certifications of management practices and site restrictions. annual reporting of planting.]

K. Soil types

Soil types in the area include Name of USGS soils. These soil types have low available water capacity, moderate permeability, slow runoff and erosion potential, slight salinity and alkalinity, and an effective rooting depth of number inches or greater.

L. Groundwater Depth

The groundwater level underlying the Name of location sites are more than number feet below the ground surface with a direction gradient.

M. Prevailing Winds

In the Name of location area, the prevailing winds are from the direction during summer months characterized by a weak breeze during the morning hours and becoming stronger during the afternoon. During winter months the prevailing winds are from the direction.

N. Staff Training

Staff is trained on proper administration of this Biosolids Management Plan and any other requirements to fully administer Name of Contractor's biosolids program. The training includes but is not limited to basic biosolids regulations on the federal, state, and local level as well as on the client's particular requirements. The training includes safety aspects related to biosolids handling, endangered species, public perception issues, and communication with the public. The training of staff is done on an annual basis and the records are kept in the Name of Contractor main office and are made available to clients upon request.

Name of Contractor arranges the best available time for regular and subcontracted staff to receive additional training by the WWTP's after previous notification.

IV. Controls

The treatment, storage, use, transport, or application of biosolids shall not cause a nuisance. Buffer zones are set-back areas that will not receive biosolids. These buffers provide additional water quality

protection and will help minimize potential nuisance. The buffer zone distances to be observed are:

- ½ mile from residences
- 1000 feet from a dwelling unless the biosolids are injected or incorporated into the soil within 10 hours of application.
- 1000 feet from a public or semi-public drinking water supply wells
- 250 feet from any other water well
- 33 feet from waters of the United States (surface waters)
- 100 feet from public roads

A. Critical Control Point Table

Name of Contractor will provide a Critical Control Point table. Include a table of critical control points and how those critical points are controlled (operationally, administratively, SOPs, monitoring, measuring, reporting, etc.).

B. Soil Testing

Soils from each field are analyzed for nutrients and metals prior to the initial biosolids application. A composite of soil from three depths ranging from 3-11 inches are sampled at eight separate, randomly selected locations, and are analyzed on each permitted site.

C. Odor Control

The nearest downwind population from the land application sites is located about number of miles mile to the direction from the closest application site. To avoid odor impacts, Name of Contractor, in coordination with the name of location, will abide by the following:

a. Biosolids will be incorporated into the soil within number hours. This minimizes the exposure of the biosolids to the air and reduces the release of odors.
b. Buffer zones from sensitive receptors are met, including a ½ mile buffer zone from residences. This allows any odors released from the site to dissipate before reaching sensitive receptors.
c. Trailers are tarped. This keeps odors from escaping from the trailer during the transportation of the biosolids.

D. Dust Control

Dust is a potential nuisance typical farming operations. The delivery of biosolids can create additional dust to the farming operation. This management plan includes the following odor control measures:

a. Dirt roads used will be watered if excessive dust is produced where it leaves the farm's boundaries
b. Buffer zones from sensitive receptors are met. This keeps the movement of dust off-site to a minimum.
c. Further explain site's dust mitigation plan

E. Noise Control

The delivery and application of biosolids has the potential for creating excess noise. This management plan includes the following noise control measures:

a. Haul routes are established to avoid residential and school zones, and noise sensitive areas.

b. Biosolids deliveries and operations are limited to daylight hours if operations or haul routes are near residential areas or sensitive receptors.
c. Buffer zones from sensitive receptor are met. This keeps a distance between operation activity and the sensitive receptors.

F. Access Control

The location has "no trespassing" signs posted. Entrance to the fields is through one main entrance. All visitors must check in the front desk. Our sites are remote and have a low potential for public exposure; public exposure and animal grazing is restricted for 30 days after application of sewage sludge.

G. Stockpiling Issues

No stockpiling of biosolids materials beyond the standard holding time are practiced. See the Storage section for exceptions.

H. Site Restrictions

Once a field has been adequately fertilized and amended with biosolids, it is posted with a notice that states, e.g., "Keep Off Field – Biosolids Building Healthy Soils – For Information Call (xxx) xxx-xxxx". The postings are placed at the main access road to the application fields.

I. Water Quality Controls

To protect surface water from possible degradation, soil erosion and the off-site movement of biosolids must be minimized. The off-site movement of biosolids and soil erosion is minimized by the following actions:

a. Set buffer zones as described in the stringent California General Order
b. Organic matter in biosolids help bind soils and help reduce soil erosion
c. Biosolids are applied at the nitrogen need of the crop

Ground water degradation is prevented by the following actions:

a. Biosolids are applied at the nitrogen need of the crop. Because nitrogen is the most mobile constituent in the biosolids, applying it at rate the crop will use ensures that no nitrate will leach through the soil and affect the groundwater.
b. Soil typically adsorbs metals to its particles. Most soils, including those found in location, have a negative charge measured as Cation Exchange Capacity (CEC). Metals are positively charged called cations. Once metals enter a soil, they adhere to the soil particles, which prevent the metal from migrating to the groundwater.
c. Buffer zones from active wells, homes and surface waters helps prevent biosolids from being placed near sensitive areas.

1) Surface Water

Site is protected for 100-year storm. No application of biosolids will take place within 10 meters of any waters of the United States.

2) Groundwater

The setbacks to drinking water wells are 500 feet and to non-domestic wells are 250 feet.

J. Inspections

Verification of regulatory compliance is done by several different agencies. The name of the local regulating agency, the EPA Region IX, and the biosolids generators perform periodic inspections and report with verbal and written notifications and recommendations for improvement.

V. Emergency Preparedness & Response

A. Weather Not Suitable for Land Application

No application will be done when the precipitation is greater than ¼ inch per hour, when soils are saturated, or when winds exceed 15 mph. When this occurs, the operation will be halted and, depending on the situation, may be moved to another more appropriate site. The project manager will inform the dispatcher and the generators of any change in schedules. The dispatcher, in turn, informs the drivers of any change in routes and delivery locations.

B. Natural disasters

Include information on how Contractor is prepared for natural disasters.

C. Other emergencies

Include information on how Contractor is prepared for other emergencies.

D. Emergency Communications

Include a description of how Contractor will communicate internally and externally during emergencies.

E. Emergency Operating Procedures

a. Transportation
b. Land Application/Biosolids Processing
c. Storage

F. Emergency Plan Training

a. Staff training
b. Evacuation drills

VI. Monitoring, Recordkeeping and Reporting

Many agricultural practices have the potential to impact the environment negatively. Chemical fertilizers, pesticides, herbicides and manures have been used on farmland for decades, often at uncontrolled rates. Biosolids, on the other hand, are regulated intensely to protect public health, as well as the environment. The EPA's 40 CFR Part 503 regulations, as well as state and local regulations, have set up guidelines to protect environmental quality and the public.

A. Biosolids Testing

In order to ensure compliance with the nutrient loading and agronomic application limits, biosolids are periodically tested by name of lab.

Soils from each field are analyzed prior to the initial biosolids application. A composite of soil from three depths ranging from 3-11 inches are sampled at eight separate, randomly selected locations, and are analyzed on each permitted site. Soils are analyzed by name of lab for the following:

<u>Plant Macro Nutrients & others</u>: (analyzed prior to every application)

- Total Kjeldahl Nitrogen (TKN)
- Phosphorous

- Ammonia Nitrogen
- Nitrate Nitrogen (NO3-N)
- Phosphate
- Potassium
- Cation Exchange Capacity (CEC)
- Soil pH

Trace Metals & others: (analyzed when application has reached 40 dry tons of biosolids and every 40 dry ton thereafter)

- Arsenic
- Cadmium
- Copper
- Molybdenum
- Lead
- Mercury
- Nickel
- Selenium
- Zinc
- PCBs
- Dioxins

B. Other Monitoring

Describe any additional biosolids, product, operational or other monitoring.

C. Recordkeeping

Name of Contractor collects and maintains the following information for a minimum of 5 years:

- Regulatory Annual Reports
- The location, by quarter section, section, township, range and assessor's parcel number, of each site on which biosolids is applied, including a map, of scale 1:24,000 or larger, accurately showing the location.
- The number of hectares in each site on which biosolids is applied.
- The date and wet and dry tonnages of biosolids was applied to each site.
- The crops produced by field and date of planning and harvesting.
- The cumulative amount of each pollutant, in pounds, listed in 40 CFR 503.
- A description of how the requirements to obtain information in the above paragraph are met
- As applicable, documents are versioned and/or given effective dates. Path and file names are included in the footer of all documents, as applicable.
- Name of Contractor also collects and maintains the following information for a minimum of five years:
    - List items that apply. Example, hauling, DOT compliance, incident (biosolids releases) response.

D. Reporting

Name of Contractor will notify OCSD, and the appropriate regulators of non-compliance within 24 hours of an incident. See OC San's BCR document: Communication Requirements for OC San's Biosolids Contractors.

VII. Community Relations and Communications Plan

The farmers and Contractor seek proactive relationship-building opportunities with the local community and neighbors.

If there are individual neighbors who have concerns regarding Name of Contractor land application program, Name of Contractor addresses those individuals directly to answer any concerns that are raised. If a community raises concerns that cannot be resolved individually, community outreach can be coordinated between Name of Contractor and the local community (See Appendix D).

A. Existing Community and Political Relationships

The farmer is a respected member of the community and will serve as a spokesman for biosolids program at Name of location.

B. Communications

1) Internal Communication

Staff is to understand Name of Contractor's mission and how it associates with the policy of its customers. Training on this is done insert frequency. Staff training on job operations, safety, biosolids releases and other emergency response is also done at least once annually. Records are maintained onsite including sign-in sheets and training agendas for each meeting.

2) External Communication

Management and staff can provide communication and outreach to interested parties. Communication can come through several different methods, such as:

- Direct contact with company via phone, email, mail, website, social media, etc.
- Presentations and outreach materials
- Tours of the facility and operation
- Classroom education
- Sponsoring of public events
- Correspondence with regulators, media, or associations
- Communications with customers/generators, e.g., OC San (see below)

Name of Contractor maintains open and honest lines of communication with the farmer and WWTP's and makes every effort to keep these parties apprised of pertinent situations as they arise.

3) Communications with OCSD

See OC San's BCR document: Communication Requirements for OC San's Biosolids Contractors.

C. Community Outreach Program and Materials

Name of Contractor staff or the farmer provides public outreach in some of the following ways:

- Give presentations to local community meetings, regulators, schools, and informal meetings
- Hand out fact sheets
- Prepare letters of support for biosolids use in agriculture
- Organize public education and involvement

- Support local community events
- Post signs and/or websites with information on biosolids management activities

Name of Contractor staff can also participate in agriculture associations to gain support from other members of agriculture associations through presentations, sponsoring a booth in local events, and providing handouts. They can participate in educative efforts through editorial county Board presentations, presentations to schools, and maintaining an overall open line of communication with interested parties.

Name of Contractor can support research projects with local universities that have an interest in studying the use of biosolids to grow crops or to study environmental impacts.

D. Community Inquiry Response

Name of Contractor seeks to understand, respond to, and follow-up on all inquiries and complaints received. To that effect a Community Inquiry Response Form was created. This form is completed by staff receiving comments or complaints. Comments or complaints are logged in a binder called "Community Inquiry Response Forms".

VIII. References

IX. Attachments

A. Biosolids Response and Recovery Plan (if different that OC San's Plan)
B. Maps of Permitted Sites (including landmarks, major farm roads, dwellings, wells, field numbers, and acreage)
C. Copies of Permits
D. Public Inquiry and Response Form

Attachment A

OCSD will accept a customized Biosolids Response and Recovery Plan or Contractor can cross-reference OCSD's Biosolids Response and Recovery Plan.

Attachment B

Maps of Permitted Sites
(Including landmarks, major farm roads, dwellings, wells, field numbers, and acreage)

Attachment C

Copy of Permits

Attachment D
EXAMPLE: Community Inquiry/Complaint Form

Employee handling the call:……
Date and time of call:……

Caller information: (so that Name of Contractor management can contact later)

Name:……
Address:……
Phone:……
Email:……

Complainant Interview Questions:

- What is the complaint about? …….. Odor …….. Flies …….. Noise Other (describe)
……
- When and where did you first detect the (odor, noise, other)? Frequency? Intensity?
……
- Other information? (What is Complainant requesting from Name of Contractor?)
……
……

Thanks you for calling Name of Contractor. The complaint will be investigated and we will get back to you.

Go outside and record the following information corresponding to the time of the (odor, noise, or other) complaint. Respond to complaint location if possible and repeat there:

- Wind direction: …… Wind speed: …… Temperature: ……
- Other (flies, odors, recent operational changes)

……

Conduct an immediate investigation contacting appropriate personnel to gain pertinent information. Contact the Operations Manager and provide the information.
Notes: ……

Notification of OCSD (date, time, comments): ……

Investigation Findings: ……

Corrective and Preventive Actions: ……

Follow-up with Complainant (date, time, comments): ……
……..

Contractor Biosolids Management Plan Requirements – Compost

Note to Contractor: This document contains the minimum requirements to be included in the Contractor's customized Biosolids Management Plan (BMP). It is the Contractors responsibility to:

- Summarize the compost facility's key operational and regulatory compliance aspects including anything beyond these minimum requirements. The Contractor's version can cross-reference other existing documents if they are submitted to OC San as appendices or under separate cover.
- Maintain the Biosolids Management Plan and submit changes and updates to OC San with the monthly report.
- Ensure that all key elements are integrated into the Contractor's management system,
- Ensure that staff are appropriately trained.
- Participate in and respond to OC San inspections and audits that will be based in part on the BMP.

BIOSOLIDS MANAGEMENT PLAN

Name of Contractor	**Path:** Location where file resides
Subject: Biosolids Management Plan	**Effective Date:** Date it will become effective
Approved by: Name of Person Responsible	**Supersedes Date:** Effective date of previous document

Requirements

1. **Description of the Site** (address, acres, processes, closest neighbor distance, capacity, prevailing winds – daily and seasonal). Include facility map. Site restrictions including security / access controls (eg., fences, signs, patrols during off hours etc.).

2. **List of regulatory agencies** with oversight and list of permits. Ensure that OC San has a copy of these permits if they haven't been submitted elsewhere.

3. **Description of Operations** including general description of processes, key equipment, commitment to preventive and corrective maintenance, site access controls, water quality controls, environmental monitoring. Identify any other operating constraints not covered above. Processed and unprocessed material restrictions. Include a table of critical control points and how those critical points are controlled (operationally, administratively, SOPs, monitoring, measuring, reporting etc.).

4. **Process Controls Monitoring, Recordkeeping and Reporting** including analytical testing procedures, recordkeeping procedures, and list of reporting (routine LEA, EPA, and OC San reporting and emergency notifications). Include testing of biosolids, types of analyses, and frequency. Annually OC San requires a spreadsheet submittal of data to meet EPA database upload requirements. Include compost testing types of analyses, and frequency.

5. **Nuisance controls (including odor, dust, noise, flies)**

6. **Water Quality Controls including surface and ground water protection methods and monitoring requirements**

7. **Air Quality Controls, permits, and monitoring requirements**

8. **Other environmental monitoring and controls not covered otherwise**

9. **Onsite storage** – description and volume / capacities

10. **Preventative Maintenance for onsite equipment**

11. **Utilization of Root Cause, Corrective, and Preventive measures in response to incidents and non-conformances (deviation from standard operating procedures)**

12. **Truck washing facilities and/or truck cleaning plan**

13. **Facility Contingency, Emergency Response, plan** addressing emergencies such as inclement weather, natural disasters, power outages, earthquakes including internal and external communications during the event and training.

14. **Biosolids Hauling Plan** (if not submitted under separate cover) including **Biosolids Response and Recovery and template form (see Hauling section of OC San's BCR)**

15. **Inspections -** Verification of regulatory compliance is done by several different agencies. The name of the local regulating agency, the EPA Region IX, and the biosolids generators perform periodic inspections and report with verbal and written notifications and recommendations for improvement

16. **Community Relations and Communications Plan** – who are the Contractor's target stakeholders, what tools and vehicles does Contractor use to communicate and frequency, what materials are shared and available for interested parties, and how does Contractor stay abreast of community developments and concerns, measurements of effectiveness. Include Contractor's Community Inquiry Response form (see example below).

17. **Staff Training Program** – what kinds of topics, how often, tools and vehicles used to communicate with staff, measurements of effectiveness.

18. **Compost marketing**: Describe how Contractor's compost is sold and marketed and to whom. How much compost is typically stockpiled onsite (break into four seasons or quarters of the year to reflect fluctuations).

19. **Emergency preparedness and response** – include high winds, wet weather (including any operational limitations during wet weather), fire, earthquake, tornado, power outages.

20. **References**

21. **Attachments** – include facility map, copies of permits, Public Inquiry and Response Form (see example).

Example: Community Inquiry/Complaint Form

Employee handling the call:……

Date and time of call:……

Caller information: (so that Name of Contractor management can contact later)

Name:……
Address:……
Phone:……
Email:……

Complainant Interview Questions:

- What is the complaint about? …….. Odor …….. Flies …….. Noise Other (describe)
……
- When and where did you first detect the (odor, noise, other)? Frequency? Intensity?
……
- Other information? (What is Complainant requesting from Name of Contractor?)
……
……

Thanks you for calling Name of Contractor. The complaint will be investigated and we will get back to you.

Go outside and record the following information corresponding to the time of the (odor, noise, or other) complaint. Respond to complaint location if possible and repeat there:

- Wind direction: …… Wind speed: …… Temperature: ……
- Other (flies, odors, recent operational changes)

……

Conduct an immediate investigation contacting appropriate personnel to gain pertinent information. Contact the Operations Manager and provide the information.
Notes: ……

Notification of OC San (date, time, comments): ……

Investigation Findings: ……

Corrective and Preventive Actions: ……

Follow-up with Complainant (date, time, comments): ……
……..

Contractor Biosolids Management Plan Requirements – Pellets / Biochar

Note to Contractor: This document contains the minimum requirements to be included in the Contractor's customized Biosolids Management Plan (BMP). It is the Contractors responsibility to:

- Summarize the facility's key operational and regulatory compliance aspects including anything beyond these minimum requirements. The Contractor's version can cross-reference other existing documents if they are submitted to OC San as appendices or under separate cover.
- Maintain the Biosolids Management Plan and submit changes and updates to OC San with the monthly report.
- Ensure that all key elements are integrated into the Contractor's management system.
- Ensure that staff are appropriately trained.
- Participate in and respond to OC San inspections and audits that will be based in part on the BMP.

The Contractor shall include the following in the Management Plan:

1) A Biosolids Hauling Plan. See Hauling Plan Template Section.

2) Project Information

3) Project Description

a) Physical location of project (including address, acres, processes, closest neighbor distance, capacity). Include facility map)

b) Description and explanation of your technology and entire process from hauling to end use market and waste product disposal/recycling

c) Installation locations and references for similar projects built and operating in U.S. or outside U.S

d) Benefits (including environmental, climate change, carbon sequestration, socio-economic, proximity to OC San, etc.)

4) Process Flow and Feedstock Specifications

a) Maps and process diagrams

b) Description of critical control points (CCP), how they are controlled (operational controls), and how these CCPs are monitored, measured, and reported. (See Appendix C – OC San Value Chain Table)

c) Initial and anticipated final capacity, along with maximum potential for final site build-out

d) Description of biomass feedstock other than biosolids (e.g. food waste)

e) Operational temperature and/or pressure ranges

f) Description of waste side streams (solids, air, and liquid), how they are treated, and where and to whom (agency) waste side stream is discharged or transported

g) Description of contaminant removal technologies utilized

5) Product and Market Descriptions

a) Marketing plan including the information in this section.

b) Products quality standards met and minimum requirement (differentiate between the two).

c) Products quality standard testing / monitoring.

d) Beneficial products of the process such as fertilizer, biochar, biogas, electricity, fuel other, how these beneficial products used, and description of the market does they reach.

e) Estimated quantity of products produced daily and annually in tons.

f) Description of the reliable market outlets for 100 percent or more of the product volume.

g) Failsafe markets

h) Buyers and respective levels of commitment

i) Parties or agencies/utilities involved with any Purchase Power Agreements (PPA) with an energy utility.

6) Project Readiness: Description of project status (stage of implementation), timing, and relevant milestones, including performance tests and commissioning schedule, if not fully operational at the time of submittal. Include proof of performance and minimum performance expectations.

a) Permits and Regulations:
   i) Table of all applicable regulations and regulatory agencies
   ii) Copies of all permits and regulatory requirements

b) Contingency plan(s), addressing, but not limited to:
   i) Maintenance shut-downs;
   ii) Unanticipated process interruptions;
   iii) Redundancy or other failsafe options for critical equipment;
   iv) Product market temporary and permanent interruptions and changes;
   v) Inclement weather,
   vi) Power outages,
   vii) Natural disasters such as floods, fires, earthquakes, and power outages; and
   viii) Internal and external communications during the event and training including how updates are communicated to OC San.

c) Description of risk identification and mitigation for the following:
   i) Air quality/Greenhouse gas emissions
   ii) Power consumption
   iii) Water consumption
   iv) Wastewater (sewer) discharges
   v) Nuisances (odor complaints, traffic, aesthetics, etc.)
   vi) Soil and groundwater contamination.

7) Community Relations and Communications Plan – List the Contractor's target stakeholders, kinds tools and vehicles the Contractor will use to communicate and frequency, types of materials that are shared and available for interested parties, and methods for the Contractor stay abreast of community developments and concerns, measurements of effectiveness. Include Contractor's Community Inquiry Response form.

8) Training Program – List training topics, frequency, tools and vehicles used to communicate with staff, and measurements of effectiveness.

II.A.2. CWEA – Manual of Good Practice Biosolids Manager Checklists

Table 4-1
PART 503 REGULATORY REQUIREMENTS CHECKLIST
APPLIER

	CITATION		✓
1.	503.12(a)	Apply biosolids in accordance with all applicable federal requirements.	
2.	503.12(b)	Do not exceed any of the cumulative pollutant loading rates, Table 2 of 503.13, at a land application site.	
3.	503.12(e)(1)	Obtain necessary information on biosolids quality from the Generator.	
4.	503.12(e)(2)(i), (ii), (iii)	Contact federal and/or state permitting authority regarding whether bulk biosolids subject to 503.13, Table 2 CPLRs were applied to the site since July 20, 1993. If bulk CPLR biosolids were not applied to the site since July 20, 1993, the cumulative amount of each Table 2 pollutant may be applied to the site. If bulk CPLR biosolids have been applied to the site since July 20, 1993, the cumulative amount of each pollutant previously applied to the site is used to determine the additional amount of pollutant that can be applied to the site in accordance with Table 2.	
5.	503.12(e)(2)(iv)	Do not apply biosolids to a site if CPLR biosolids have been applied to the site since July 20, 1993 and the cumulative amount of each pollutant applied is not known.	
6.	503.12(h)	Provide notice and necessary information to comply with applicable Part 503 requirements to the owner/leaseholder of the land on which the bulk biosolids are applied.	
7.	503.12(j)	Provide written notice to U.S. EPA and the state permitting authority prior to the land application of bulk CPLR biosolids.	
8.	503.14(a)	Protect threatened or endangered species or their designated critical habitat.	
9.	503.14(b)	Protect surface waters and wetlands.	
10.	503.14(c)	Do not apply biosolids within 10 meters of any waters of the United States.	
11.	503.14(d)	Apply bulk non-EQ biosolids at an application rate equal to or less than the agronomic rate for the crop or vegetation.	
12.	503.15	Meet the pathogen reduction and vector attraction reduction requirements when bulk biosolids are applied to the land.	
13.	503.17(a)(3), (4)(ii), (5)(ii)	Maintain certain records of data collected indefinitely and certain records for 5-years for CPLR biosolids.	
14.	503.17(a)(5)(ii)	Prepare and supply annual reports to the permitting authority for each year when 90% or more of any cumulative pollutant loading rate is reached for the site.	
15.	503.32(b)(1)(ii), (b)(5)	Meet various site restrictions when the pathogen reduction level is Class B.	
16.	503.33(b)(9), (b)(10)	If vector attraction reduction requirements are not met prior to land application, comply with Options 9 or 10.	

Table 4-2
GOOD MANAGEMENT PRACTICES CHECKLIST
APPLIER

	PROGRAM MANAGEMENT	✓
1.	Train employees to properly administer the land application program.	
2.	Provide a knowledgeable spokesperson to handle public relations.	
3.	Prepare a written Site Management Plan.	
4.	Maintain accurate and well organized records.	
5.	Prepare and distribute routine Operations Status Reports.	
6.	Promptly notify the stakeholders about regulatory violations and other incidents.	
	OPERATIONS	✓
7.	Implement a Nitrogen Management Plan.	
8.	Adequately size buffer zones.	
9.	Maintain a minimum depth to potable groundwater of 10 feet.	
10.	Incorporate biosolids applied to tilled fields as soon as possible after application.	
11.	Clean all vehicles and equipment prior to entering public roads.	
12.	Minimize soil compaction.	
13.	Properly manage staging and storage areas.	
14.	Restrict public access by posting *No Trespassing* signs or instituting other measures.	
15.	Minimize dust emissions during biosolids applications.	
16.	Minimize ponding of liquid biosolids on soil surfaces when using subsurface injection.	
17.	Verify regulatory requirements and GMP checklist compliance by Generator, Transporter, and Grower.	
18.	Clearly identify site access routes and staging areas.	
19.	Practice appropriate health safeguards.	

III. GOOD MANAGEMENT PRACTICES DISCUSSION

This section provides an explanation of the management practices listed in Table 4-2. For each management practice, the purpose of the practice is discussed along with guidance for implementing the practice. Supplemental materials referenced in the text are included in the appendices.

1. Train employees to properly administer the land application program.

Purpose: Successful land application depends on having a well-trained staff. All personnel must recognize their duties and responsibilities to comply with all applicable regulatory requirements, protect human health and the environment, meet contract obligations, and avoid nuisance conditions that impact surrounding communities and draw negative attention to the operation. Maintaining the trust and confidence of Generators, regulators, and the public requires a dedicated and knowledgeable staff and a land application company committed to maintaining the skill of that staff. Training is provided to match the level of responsibility of each employee. Employees can generally be grouped into management/administrative (management) personnel and operations staff.

Table 5-1

PART 503 REGULATORY REQUIREMENTS CHECKLIST
GROWER

	CITATION		✓
1.	503.32(b)(5)(i)	Do not harvest food crops for 14 months after application of Class B biosolids when the crop's harvested part touches the biosolids-amended soil and the harvested part is totally above the land surface. Food crops are crops consumed by humans and include, but are not limited to, fruits, vegetables, and tobacco. Examples of these crops are melons, strawberries, eggplant, squash, tomatoes, cucumbers, celery, cabbage, and lettuce (U.S. EPA, 1994).	
2.	503.32(b)(5)(ii)	Do not harvest food crops for 20 months after application of Class B biosolids when the crop's harvested part is below the surface of the biosolids-amended soil and the biosolids remain on the land surface for four months or longer prior to incorporation into the soil. Examples of these crops are potatoes, yams, sweet potatoes, rutabaga, peanuts, onions, leeks, radishes, turnips, and beets (U.S. EPA, 1994).	
3.	503.32(b)(5)(iii)	Do not harvest food crops for 38 months after application of Class B biosolids when the crop's harvested part is below the surface of the biosolids-amended soil and the biosolids remain on the land surface for less than four months prior to incorporation into the soil.	
4.	503.32(b)(5)(iv)	Do not harvest food, feed, or fiber crops for 30 days after application of Class B biosolids. Feed crops are those produced primarily for consumption by animals. Fiber crops include crops such as flax or cotton.	
5.	503.32(b)(5)(v)	Do not allow animal grazing for 30 days after application of Class B biosolids. This requirement has been interpreted to apply to grazing of domestic herds and not deer and other wild animals.	
6.	503.32(b)(5)(vi)	Do not harvest turf for 12 months after application of Class B biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.	
7.	503.32(b)(5)(vii)	Restrict public access for 12 months after application of Class B biosolids when the land has a high potential for public exposure. Land with a high potential for public exposure is that which the public uses frequently. This includes a public contact site (e.g. parks, playgrounds, or golf courses) and a reclamation site located in a populated area (e.g. a construction site located in a city).	
8.	503.32(b)(5)(viii)	Restrict public access for 30 days after application of Class B biosolids when the land has a low potential for public exposure. Land with a low potential for public exposure is that which the public uses infrequently. This includes, but is not limited to, agricultural land (e.g., farmland in rural areas, securely fenced areas, or remote land), forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).	

Table 5-2

GOOD MANAGEMENT PRACTICES CHECKLIST
GROWER

	PROGRAM MANAGEMENT	✓
1.	Develop and maintain a basic knowledge of biosolids characteristics.	
2.	Exercise proper oversight of Applier's activities.	
	OPERATIONS	✓
3.	Cooperate with Applier in development and implementation of a Nitrogen Management Plan.	
4.	Restrict public access by posting *No Trespassing* signs or instituting other measures.	
5.	Ensure that only allowable crops are harvested after the application of Class B biosolids.	

III. GOOD MANAGEMENT PRACTICES DISCUSSION

This section provides an explanation of the management practices listed in Table 5-2. For each management practice, the purpose of the practice is discussed along with guidance for implementing the practice. Supplemental materials referenced in the text are included in the appendices.

II.A.3. Contractor Report Requirements Checklist

Contractor Report Requirements Checklist

Reports are due by 15th of following month

a. **COMPLIANCE VERIFICATION**

- ☐ Statement affirming that the facility was in compliance with all regulations and requirements and explaining any exceptions with relevant back-up included.

b. REGULATORY DOCUMENTS

- ☐ Copies of all letters and reports submitted to regulatory agencies.
- ☐ Copies of all regulatory inspection reports.
- ☐ Copies of renewed or updated permits or regulatory requirements

c. BIOSOLIDS MANAGEMENT PLAN UPDATES

- ☐ Changes to Contractor's current Biosolids Management Plan

d. **BIOSOLIDS TRACKING SYSTEM (BTS) ENTRIES**

- ☐ 100% of load tickets are verified, destinations entered, and issues are resolved before invoicing OC San.

e. **COMPOST OPERATIONS**

- ☐ Monthly average or one-day representative snapshot of tons of biosolids stored/stockpiled before active composting
- ☐ Monthly average or one-day representative snapshot of tons of biosolids in active composting
- ☐ Monthly total tons of biosolids composted from OC San
- ☐ Monthly total tons of biosolids composted from other generators
- ☐ Monthly total weight (tons) and volume (cubic yards) of compost produced at the facility
- ☐ Monthly total weight (tons) and volume (cubic yards) of compost shipped
- ☐ Monthly total weight (tons) and volume (cubic yards) of compost delivered to Orange County and OC San member agencies (separate line items)
- ☐ Copies of daily temperature and turn logs
- ☐ Initial mix and aeration system used

f. **LAB REPORTS –** Copies of all related product testing results from certified labs. Submit monthly if not part of LEA submittal.

g. **STORAGE –** Any storage of material onsite or within the system including how much final BTC product is stored onsite.

h. **PUBLIC –** Provide a report of all interested parties, communication, public participation, proactive outreach, and general public interactions (Community Inquiry Response form, Incident Report, or similar) including summary of the interaction, input received, outcome, any necessary follow-up and corrective actions. Note that prompt notification (within 24 hours) is required per "*Biosolids Contractor Requirements Communications with OC San*."

i. **MARKETS –** Distribution to markets (volumes to each market and the county the market is in).

j. **DRIVERS –** Quarterly updated list of drivers including changes to drivers who haul from OC San, including sub-haulers.

II.A.4. Biosolids Contractor Requirements for Communications with OC San

Monthly Contractor Report Requirements Checklist
LAND APPLICATION

Reports are due by 15th of following month

a. COMPLIANCE VERIFICATION

☐ Statement affirming that the facility was in compliance with all regulations and requirements and explaining any exceptions with relevant back-up included.

b. REGULATORY DOCUMENTS

☐ Copies of all letters and reports submitted to regulatory agencies including but not limited to the LEA monthly/quarterly submittal.

☐ Copies of all regulatory inspection reports.

☐ Copies of renewed or updated permits or regulatory requirements

c. BIOSOLIDS MANAGEMENT PLAN UPDATES

☐ Changes to Contractor's current Biosolids Management Plan

☐ Include an updated organizational chart and list of roles and responsibilities when personnel changes are made (only the key personnel listed in the org chart). These items will need to be updated in the above Biosolids Management Plan.

d. LAND APPLICATION OPERATIONS

☐ **Field Status Report:** Submit a report detailing each of the land application fields, whether they were planted, harvested, spreading biosolids, or fallow along with at least prior 12-month history. See example report below. A = Available, F = Fallow, H= Harvested, P = Planted, S = Spreading biosolids

Field	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21
1	A	A	A	A	A	A	A	A
2	A	A	A	A	A	A	A	A
3	A	A	A	A	A	A	A	A
4	P	P	H	S	S	P	P	P
5	F	S	S	F	F	P	P	P
6	A	A	A	A	A	A	A	A
7	A	A	A	A	A	A	A	A
8	S	P	P	H	F	F	F	F
9	A	A	A	A	A	A	A	A
10	F	F	F	F	S	S	P	P
11	P	P	H	F	F	F	F	F
12	A	A	A	A	A	A	A	A
13	A	A	A	A	A	A	A	A
14	P	P	P	H	F	F	F	F

e. **Non-conformances**: Non-conformances are deviations from standard operating procedures (SOPs) but are not necessarily a regulatory non-compliance. **INCLUDE ROOT CAUSE, CORRECTIVE ACTIONS AND PREVENTIVE ACTIONS FOR EACH INCIDENT.**

- ☐ Regulatorily-defined "Special Occurrences" on-site (include copies of Special Occurrence Log)
- ☐ Product batches that do not meet specifications
- ☐ Critical equipment breakdowns root cause and corrective and preventive actions
- ☐ Significant changes (including temporary and interim changes) to processes, input, outputs, and markets
- ☐ Copy Incident reports (as covered in Communication Requirements document – 48-hour reporting) shall include information regarding the incident, which regulatory requirements are impacted (if any), regulatory notifications made (if any), the Contractor's response, root cause analysis, detailed corrective and preventive actions, and pictures. The Contractor shall take corrective and preventive actions to address root causes.
- ☐ Outstanding responses to OC San Inspection reports
- ☐ Other non-conformances

f. **LAB REPORTS –** Copies of all related product testing results from certified labs. Submit monthly if not part of LEA submittal. State required testing frequency of less frequent than monthly.

g. **STORAGE –** Volume(s) of any material(s) stored onsite or within the system not already reported.

h. **MARKETS**

- ☐ Volume of final product(s) stored onsite on last day of month.
- ☐ Distribution of final product(s) to markets (volumes to each market and the county the market is in).
- ☐ Changing Market / Management of Products: OC San would like to know before a market or product use location change. Provide notification in prior monthly reports leading up to the change.
- ☐ Note Riverside County may require special permitting for biosolids-based products.

i. **BIOSOLIDS TRACKING SYSTEM (BTS) ENTRIES**

- ☐ Confirm that 100% of load tickets are verified and issues are resolved before invoicing OC San.

j. **DRIVERS –** Quarterly updated list of drivers including changes to drivers who haul from OC San, including sub-haulers.

k. **PUBLIC –** Provide a report of all interested parties, communication, public participation, proactive outreach, and general public interactions (Community Inquiry Response form, Incident Report, or similar) including summary of the interaction, input received, outcome, any necessary follow-up and corrective actions. Note that prompt notification (within 24 hours) is required per "*Communication Requirements for OC San's Biosolids Contractors*."

l. **ANNUAL REPORTS**

- ☐ Per OC San's NPDES permit, OC San is required to have the Contractor submit a copy of their annual report in pdf to USEPA and the state agency where biosolids are land applied.
- ☐ Contractor shall submit a copy of their annual report to OC San by March 15th.
- ☐ OC San sends a template spreadsheet for Contractor to summarize annual volumes used within each County to be submitted under separate cover.

ORANGE COUNTY SANITATION DISTRICT

Monthly Contractor Report Requirements Checklist
COMPOST

Reports are due by 15th of following month

a. **COMPLIANCE VERIFICATION**

- ☐ Statement affirming that the facility was in compliance with all regulations and requirements and explaining any exceptions with relevant back-up included.

b. REGULATORY DOCUMENTS

- ☐ Copies of all letters and reports submitted to regulatory agencies including but not limited to the LEA monthly/quarterly submittal.
- ☐ Copies of all regulatory inspection reports.
- ☐ Copies of renewed or updated permits or regulatory requirements

c. BIOSOLIDS MANAGEMENT PLAN UPDATES

- ☐ Changes to Contractor's current Biosolids Management Plan
- ☐ Include an updated organizational chart and list of roles and responsibilities when personnel changes are made (only the key personnel listed in the org chart). These items will need to be updated in the above Biosolids Management Plan.

d. **COMPOST OPERATIONS**

- ☐ Monthly average or one-day representative snapshot of tons of biosolids stored/stockpiled before active composting
- ☐ Monthly average or one-day representative snapshot of tons of biosolids in active composting
- ☐ Monthly total tons of biosolids composted from OC San
- ☐ Monthly total tons of biosolids composted from other generators
- ☐ Monthly total weight (tons) and volume (cubic yards) of compost produced at the facility
- ☐ Monthly total weight (tons) and volume (cubic yards) of compost shipped
- ☐ Monthly total weight (tons) and volume (cubic yards) of compost delivered to Orange County and OC San member agencies (separate line items)
- ☐ Copies of daily temperature and turn logs
- ☐ Initial mix and aeration system used

e. **Non-conformances**: Non-conformances are deviations from standard operating procedures (SOPs) but are not necessarily a regulatory non-compliance. **INCLUDE ROOT CAUSE, CORRECTIVE ACTIONS AND PREVENTIVE ACTIONS FOR EACH INCIDENT.**

- ☐ Regulatorily-defined "Special Occurrences" on-site (include copies of Special Occurrence Log)
- ☐ Product batches that do not meet specifications
- ☐ Critical equipment breakdowns root cause and corrective and preventive actions
- ☐ Significant changes (including temporary and interim changes) to processes, input, outputs, and markets
- ☐ Copy Incident reports (as covered in Communication Requirements document – 48-hour reporting) shall include information regarding the incident, which regulatory requirements are impacted (if any), regulatory notifications made (if any), the Contractor's response, root cause analysis, detailed corrective and preventive actions, and pictures. The Contractor shall take corrective and preventive

actions to address root causes.

- ☐ Outstanding responses to OC San Inspection reports
- ☐ Other non-conformances

f. **LAB REPORTS –** Copies of all related product testing results from certified labs. Submit monthly if not part of LEA submittal. State required testing frequency of less frequent than monthly.

g. **STORAGE –** Volume(s) of any material(s) stored onsite or within the system not already reported (such as pre-mix piles, active piles, curing piles, pre-screen piles, etc.)

h. **MARKETS**

- ☐ Volume of final product(s) stored onsite on last day of month.
- ☐ Distribution of final product(s) to markets (volumes to each market and the county the market is in).
- ☐ Changing Market / Management of Products: OC San would like to know before a market or product use location change. Provide notification in prior monthly reports leading up to the change.
- ☐ Note Riverside County may require special permitting for biosolids-based products.

i. **BIOSOLIDS TRACKING SYSTEM (BTS) ENTRIES**

- ☐ Confirm that 100% of load tickets are verified and issues are resolved before invoicing OC San.

j. **DRIVERS –** Quarterly updated list of drivers including changes to drivers who haul from OC San, including sub-haulers.

k. **PUBLIC –** Provide a report of all interested parties, communication, public participation, proactive outreach, and general public interactions (Community Inquiry Response form, Incident Report, or similar) including summary of the interaction, input received, outcome, any necessary follow-up and corrective actions. Note that prompt notification (within 24 hours) is required per "*Communication Requirements for OC San's Biosolids Contractors*."

l. **ANNUAL REPORTS**

- ☐ Per OC San's NPDES permit, OC San is required to have the Contractor submit a copy of their annual report in pdf to USEPA and the state agency where biosolids are land applied.
- ☐ Contractor shall submit a copy of their annual report to OC San by March 15th.
- ☐ OC San sends a template spreadsheet for Contractor to summarize annual volumes used within each County to be submitted under separate cover.

ORANGE COUNTY SANITATION DISTRICT

Monthly Contractor Report Requirements Checklist
PELLETS AND BIOCHAR

Reports are due by 15th of following month

a. COMPLIANCE VERIFICATION

☐ Statement affirming that the facility was in compliance with all regulations and requirements and explaining any exceptions with relevant back-up included.

b. REGULATORY DOCUMENTS

☐ Copies of all letters and reports submitted to regulatory agencies including but not limited to the LEA monthly/quarterly submittal.

☐ Copies of all regulatory inspection reports.

☐ Copies of renewed or updated permits or regulatory requirements

c. BIOSOLIDS MANAGEMENT PLAN UPDATES

☐ Changes to Contractor's current Biosolids Management Plan

☐ Include an updated organizational chart and list of roles and responsibilities when personnel changes are made (only the key personnel listed in the org chart). These items will need to be updated in the above Biosolids Management Plan.

d. DRYER / PYROLYSIS OPERATIONS

☐ **Operations Report**: Monthly report (example below) including date, tons per day from each biosolids generator (input), silo level at the end of the day (feet), dryer and pyrolysis tonnage processed for each day, by each unit, and any operational notes/comments and special occurrences.

		OC Loads (tpd)	LA Loads (tpd)	Silo Level (feet - full = 62')	Appx % Full (using feet in silo out of 62' total)	Silo tons (1100 tons = full)	Dryer 1 tpd	Dryer 2 tpd	Pyrolysis Unit 1 tpd	Pyrolysis Unit 2 tpd	Comments & Special Occurences
9/13/2021	Monday	0	0	0	0	0	0	0	0	0	
9/14/2021	Tuesday	0	0	0	0	0	0	0	0	0	
9/15/2021	Wednesday	0	0	0	0	0	0	0	0	0	
9/16/2021	Thursday	0	0	0	0	0	0	0	0	0	
9/17/2021	Friday	0	0	0	0	0	0	0	0	0	
9/18/2021	Saturday	0	0	0	0	0	0	0	0	0	
9/19/2021	Sunday	0	0	0	0	0	0	0	0	0	
9/20/2021	Monday	0	0	0	0	0	0	0	0	0	
9/21/2021	Tuesday	0	0	0	0	0	0	0	0	0	
9/22/2021	Wednesday	0	0	0	0	0	0	0	0	0	
9/23/2021	Thursday	0	0	0	0	0	0	0	0	0	
9/24/2021	Friday	0	0	0	0	0	0	0	0	0	
9/25/2021	Saturday	0	0	0	0	0	0	0	0	0	
9/26/2021	Sunday	0	0	0	0	0	0	0	0	0	
9/27/2021	Monday	0	0	0	0	0	0	0	0	0	
9/28/2021	Tuesday	0	0	0	0	0	0	0	0	0	
9/29/2021	Wednesday	0	0	0	0	0	0	0	0	0	
9/30/2021	Thursday	0	0	0	0	0	0	0	0	0	
10/1/2021	Friday	0	0	0	0	0	0	0	0	0	
10/2/2021	Saturday	0	0	0	0	0	0	0	0	0	
10/3/2021	Sunday	0	0	0	0	0	0	0	0	0	
10/4/2021	Monday	0	0	0	0	0	0	0	0	0	
10/5/2021	Tuesday	0	0	0	0	0	0	0	0	0	

- ☐ **Operations Report – additional item for Pyrolysis:** When pyrolysis is operational, Contractor will include temperature and retention logs demonstrating sufficient temperature/retention time for destruction of PFAS.

e. **Non-conformances**: Non-conformances are deviations from standard operating procedures (SOPs) but are not necessarily a regulatory non-compliance. **INCLUDE ROOT CAUSE, CORRECTIVE ACTIONS AND PREVENTIVE ACTIONS FOR EACH INCIDENT.**

- ☐ Regulatorily-defined "Special Occurrences" on-site (include copies of Special Occurrence Log)
- ☐ Product batches that do not meet specifications
- ☐ Critical equipment breakdowns root cause and corrective and preventive actions
- ☐ Significant changes (including temporary and interim changes) to processes, input, outputs, and markets
- ☐ Copy Incident reports (as covered in Communication Requirements document – 48-hour reporting) shall include information regarding the incident, which regulatory requirements are impacted (if any), regulatory notifications made (if any), the Contractor's response, root cause analysis, detailed corrective and preventive actions, and pictures. The Contractor shall take corrective and preventive actions to address root causes.
- ☐ Outstanding responses to OC San Inspection reports
- ☐ Other non-conformances

f. **LAB REPORTS –** Copies of all related product testing results from certified labs. Submit monthly if not part of LEA submittal. State required testing frequency of less frequent than monthly.

g. **STORAGE –** Volume of any material stored onsite or within the system not already reported (such as material stockpiled onsite – not in storage silos.

h. **MARKETS**

- ☐ Volume of final product(s) stored in silo(s) on last day of month.
- ☐ Distribution of final product(s) to markets (volumes to each market and the county the market is in).
- ☐ Changing Market / Management of Products: OC San would like to know before a market or product use location change. Provide notification in prior monthly reports leading up to the change.
- ☐ Note Riverside County may require special permitting for biosolids-based products.

i. **BIOSOLIDS TRACKING SYSTEM (BTS) ENTRIES**

- ☐ Confirm that 100% of load tickets are verified and issues are resolved before invoicing OC San.

j. **DRIVERS –** Quarterly updated list of drivers including changes to drivers who haul from OC San, including sub-haulers.

k. **PUBLIC –** Provide a report of all interested parties, communication, public participation, proactive outreach, and general public interactions (Community Inquiry Response form, Incident Report, or similar) including summary of the interaction, input received, outcome, any necessary follow-up and corrective actions. Note that prompt notification (within 24 hours) is required per "*Communication Requirements for OC San's Biosolids Contractors*."

l. **ANNUAL REPORTS**

- ☐ Per OC San's NPDES permit, OC San is required to have the Contractor submit a copy of their annual report in pdf to USEPA and the state agency where biosolids are land applied.
- ☐ Contractor shall submit a copy of their annual report to OC San by March 15th.
- ☐ OC San sends a template spreadsheet for Contractor to summarize annual volumes used within each County to be submitted under separate cover.

II.A.5. OC San Biosolids Tracking System (BTS) Log-on page

Biosolids Tracking System

https://btsnew.ocsd.com/Secure/BTSLogon.aspx

Biosolids Tracking System

Friday, September 18, 2020

Field marked* are mandatory

LOGON To BTS

To help you access your account, please provide the following information.

Sign in

* Enter your email address: ContractorEmail@Contracto (e.g. john@yahoo.com)

* Enter Password: ••••••

reset next

Forgot your password?

If you are not able to use this form, please accept our apologies for the inconvenience. We are continually working to extend this online service to all our customers.

II.A.6. Annual 40 CFR 503 Compliance Reports

Plant No. 1 truck loading and centrifuge facilities with trickling filter clarifiers in the foreground.

ORANGE COUNTY SANITATION DISTRICT

BIOSOLIDS MANAGEMENT COMPLIANCE REPORT

EPA 40 CFR Part 503

Year 2020

OCSAN

ORANGE COUNTY SANITATION DISTRICT

ORANGE COUNTY SANITATION DISTRICT
10844 Ellis Avenue
Fountain Valley, CA 92708
714.962.2411
www.ocsan.gov

February 11, 2021

Hope Smythe, Executive Officer
California Regional Water Quality Control Board, Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501-3348

SUBJECT: Orange County Sanitation District Annual Compliance Report

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Enclosed please find the Orange County Sanitation District (OC San) Biosolids Management Compliance Report as required under the 40 CFR Part 503 regulations, Arizona Administrative Code Article 10, and the National Pollution Discharge Elimination System (NPDES) Permit No. CA0110604, Order No. R8-2012-0035.

OC San has uploaded this report into the EPA biosolids electronic reporting database and submitted e-mail copies to state and local regulators. A copy of OC San's EPA electronic report is included as Appendix D.

Certification Statement
The following certifications satisfy procedural requirements as listed in section V.B.5 of the Orange County Sanitation District NPDES Permit No. CA0110604 and 40 CFR part 503, section 503.17 for the submittal of the attached compliance report for calendar year 2020.

> ***NPDES permit:*** *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 the 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.*

If you have any questions or comments regarding this packet of information or require any additional data, please contact Deirdre Bingman at (714) 593-7459. I can be reached at (714) 593-7450.

Wiborg, Lan

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Lan C. Wiborg, MPH
Director of Environmental Services

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Enclosures

Our Mission: To protect public health and the environment by providing effective wastewater collection, treatment, and recycling.

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County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District
Yorba Linda Water District

ORANGE COUNTY SANITATION DISTRICT
10844 Ellis Avenue
Fountain Valley, CA 92708
714.962.2411
www.ocsan.gov

February 11, 2021

Sondra Francis
Arizona Department of Environmental Quality
Water Permits Section
1110 West Washington Street, 5415-B-3
Phoenix, AZ 85007

SUBJECT: Orange County Sanitation District Annual Compliance Report

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Enclosed please find the Orange County Sanitation District (OC San) Biosolids Management Compliance Report as required under the 40 CFR Part 503 regulations, Arizona Administrative Code Article 10, and the National Pollution Discharge Elimination System (NPDES) Permit No. CA0110604, Order No. R8-2012-0035.

OC San has uploaded this report into EPA biosolids electronic reporting database and submitted e-mail copies to state and local regulators. A copy of OC San's Arizona biosolids annual reporting form is included as Appendix E, and the EPA electronic report is included as Appendix D.

Certification Statement
The following certifications satisfy procedural requirements as listed in Arizona Administrative Code Article 10 under section R18-9-1013 for the submittal of the attached EPA 40 CFR Part 503 Compliance Report for calendar year 2020.

> ***Arizona Class B:*** *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

If you have any questions or comments regarding this packet of information or require any additional data, please contact Deirdre Bingman at (714) 593-7459. I can be reached at (714) 593-7450.

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Lan C. Wiborg, MPH
Director of Environmental Services

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Enclosures

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Irvine
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Seal Beach
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County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District
Yorba Linda Water District

TABLE OF CONTENTS

BIOSOLIDS MANAGEMENT COMPLIANCE REPORT

2020 BIOSOLIDS MANAGEMENT COMPLIANCE REPORT

Introduction

The Orange County Sanitation District (OC San) treats and manages its biosolids, the nutrient-rich, organic matter recovered through the treatment of wastewater. OC San's Biosolids Program consists of processes to ensure solids are treated onsite and used offsite (recycled) in accordance with all local, state, and federal regulations and best management practices.

OC San treats and manages its biosolids in accordance with OC San's National Pollutant Discharge Elimination System (NPDES) Permit No. CA0110604 (NPDES), Arizona Administrative Code Title 18, Ch. 9, Article 10 (R18-9), and EPA Code of Federal Regulations Title 40 Part 503 (503).

The following sections summarize OC San's activities and performances for the compliance-reporting period of January 1 to December 31, 2020.

Organization and Function

OC San is a public agency that provides wastewater collection, treatment, and recycling services for approximately 2.6 million people in central and northwest Orange County, California. OC San is a special district that is governed by a Board of Directors consisting of 25 board members appointed from 20 cities, 4 special districts, and 1 representative from the Orange County Board of Supervisors. OC San has two plants that treat wastewater from residential, commercial, and industrial sources.

- During this budgetary fiscal year (2019-2020) OC San treated an average daily sewage influent flow of **188 million gallons per day (MGD).**

- During this last calendar year (2020) OC San produced **206,896 wet tons of biosolids (47,106 dry metric tons)**, which equates to an average of **567 wet tons per day of biosolids.** No digester cleaning material was managed this year.

Accomplishments

Despite the global pandemic, OC San continued the work at hand and has several accomplishments to highlight this year including:

- Recycled 100% of OC San's biosolids.

- A pandemic contingency hauling plan was added into the Biosolids Section of the Integrated Emergency Response Plan in the case that COVID-19 impacted haulers.

- OC San issued a request for proposals for digester cleaning maintenance in June 2020 and awarded the multi-year contract to American Processing Group (APG) in October 2020. APG began cleaning digesters in January 2021.

- Food Waste Treatment Policy Initiative: As part of the implementation of the 2017 Biosolids Master Plan, 2019 Strategic Plan, and as part of the General Manager's

Work Plan goal for Fiscal Year 2020-21, OC San is conducting a market assessment of available food waste feedstock for co-digestion and securing bids to construct P2-124 “Interim Food Waste Receiving Facility” at Plant No. 2. Several prospective municipal solid waste haulers have expressed interest in providing food waste feedstock, which OC San is currently evaluating. Bid opening for P2-124 was in January 2021, and bid selection is in progress. This project is designed to receive approximately 150 wet tons of pre-processed food waste to be co-digested in OC San’s anaerobic digesters at Plant No. 2. The added organic feedstock will account for about a 10% increase of biogas production that will be used to generate electricity.

- Biosolids Management Policy Initiative – Biosolids Thermal Conversion: As directed by the 2019 Strategic Plan, a request for information (RFI) was issued for biosolids thermal conversion technologies (BTC) in April 2020. This process continues into 2021 with contract negotiations to add a BTC process that may potentially serve as a PFAS-reduction demonstration facility as a biosolids management option.

- OC San’s Research Program continues to stay abreast of advanced technologies. Participation in the International Technology Advisory Group (iTAG) is an integral part of OC San’s Research Program. The iTAG screens and evaluates potential beneficial technologies for the wastewater industry. Annually, OC San hosts the iTAG and invites other wastewater treatment agencies to learn of the most promising technologies at which time agencies may choose to pilot. OC San continues to stay current in biosolids and energy recovery technologies through this process.

- OC San’s Awards and Honors (www.ocsd.com/about-us/awards-and-honors) webpage features many 2020 awards, including:
  - National Association of Clean Water Agencies (NACWA) Platinum Award and Gold Excellence in Management Recognition,
  - Utility of the Future Today Award from the Water Environment Federation for OC San efforts in energy generation and recovery, and
  - Grand prize from the American Academy of Environmental Engineers and Scientists for the Climate Resiliency and Adaptation Plan.

Treatment Plants and Program Updates

Reclamation Plant No. 1, located in the city of Fountain Valley, treated an average of 119 MGD of wastewater. Treatment Plant No. 2, located in the City of Huntington Beach, treated an average of 69 MGD of wastewater during the most recent fiscal year.

The Plant No. 1 diversion of primary sludge from Plant No. 1 to Plant No. 2 via the interplant sludge line effectively ceased by March 2020 with the new thickening centrifuges providing additional capacity for solids treatment at Plant No. 1.

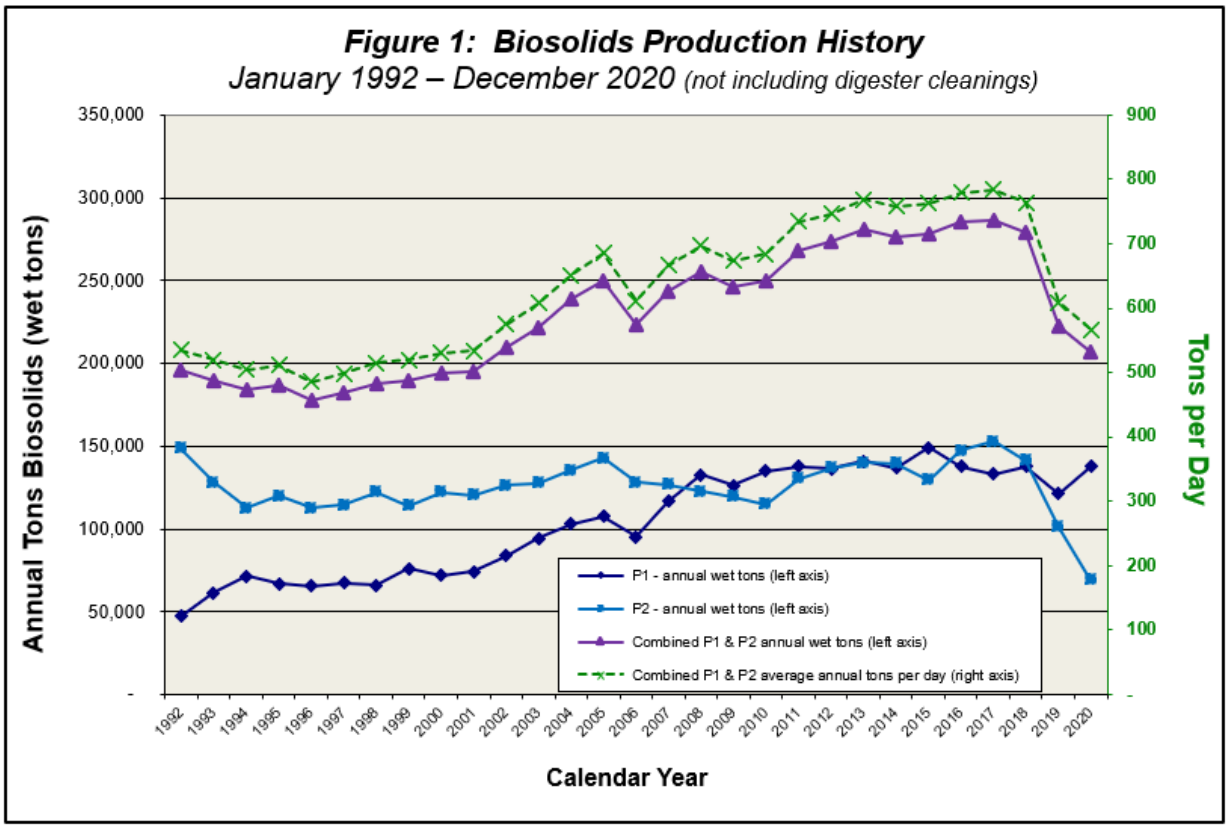
Dewatered biosolids averaged 24% total solids at Plant No. 1 and 27% total solids at Plant No. 2. The 2019 commissioning of dewatering centrifuges at both plants reduced biosolids production by about 35% (2018 vs. 2020). More detailed data, including

monthly averages, annual totals and analytical results, can be viewed in Figure 1 and Table 2 below, as well as in Appendices A, B, C, and D.

The Irvine Ranch Water District (IRWD) historically discharged its untreated solids (sludge) to OC San. IRWD is completing commissioning its new solids treatment facility and have been ramping down the volume of solids discharged to OC San as the new facilities are coming online. OC San saw a reduction in biosolids at the end of the year and anticipate an additional incremental reduction in early 2021 when the facilities are fully commissioned.

OC San's biosolids are digested for at least 15 days at a minimum of 95 degrees Fahrenheit, with a volatile solids destruction of at least 38%. OC San's anaerobically digested biosolids meet compliance with the "Class B Pathogen Reduction" and "Vector Attraction Reduction" definition for "Class B" biosolids as defined in 40 CFR Part 503.32(b)(3) (PSRP 3) and 503.33(b)(1). In addition, Tule Ranch-AgTech's standard operating procedure includes biosolids incorporation within six (6) hours which meets 40 CFR Part 503.33(b)(10) requirement and is a valuable redundancy in rare events when OC San experiences challenges meeting the Vector Attraction Reduction standard.

See Accomplishments section for an update on the new digester cleaning contract.



Biosolids Management

For this reporting period, biosolids produced at OC San's two treatment facilities were managed by the contractors listed below in Table 1.

Table 1- Biosolids Management Contractors	
Synagro - Nursery Products PO Box 1439 Helendale, CA 92342 Contact: Venny Vasquez Phone: (760) 265-5210 Email: vvasquez@SYNAGRO.com	**Synagro – South Kern Compost Manufacturing Facility** PO Box 265 Taft, CA 93268 Contact: Rob Rankin Phone: (661) 765-2200 Email: rrankin@SYNAGRO.com
Liberty Compost 12421 Holloway Rd. Lost Hills, CA 93249 Contact: Patrick McCarthy Phone: (661) 797-2914 Email: patrickmccarthy@mccarthyfarms.com	**Synagro – Arizona Soils** 5615 S. 91st Avenue Tolleson, AZ 85353 Contact: Craig Geyer Phone: (623) 936-6328 Email: CGeyer@SYNAGRO.com
Tule Ranch / Ag-Tech 4324 E. Ashlan Ave. Fresno, CA 93726 Contact: Shaen Magan Phone: (559) 970-9432 Email: kurt@westexp.com	**Inland Empire Regional Composting Authority** 12645 6th Street Rancho Cucamonga, CA 91739 Contact: Jeff Ziegenbein Phone: (909) 993-1981 Email: jziegenbein@ieua.org

These contractors provide OC San with biosolids management diversification and reliability, and are therefore important partners to OC San. These contractors submit their annual compliance reports directly to EPA, in accordance with OC San's NPDES permit requirements. For this reporting period, OC San's biosolids were beneficially reused as illustrated in Table 2. More detailed breakdowns are available in Appendices A and D.

Table 2- Biosolids Managed Tonnage Distribution

Quantity Generated	Plant No. 1	Plant No. 2	Total	Relative %
Synagro - Nusery Products CA - (compost) (wet tons)	75,410	0	75,410	36%
Synagro - Nusery Products CA - (compost) (dry metric tons)	16,708	0	16,708	
Synagro - South Kern - compost (wet tons)	3,120	0	3,120	1.5%
Synagro - South Kern - compost (dry metric tons)	698	0	698	
Synagro - AZ Soils - compost (wet tons)	880	700	1,580	0.8%
Synagro - AZ Soils - compost (dry metric tons)	194	151	345	
Liberty Compost CA (wet tons)	33,398	6,772	40,170	19%
Liberty Compost CA (dry metric tons)	7,401	1,597	8,998	
Inland Empire Regional Composting (wet tons)	0	7,304	7,304	3.5%
Inland Empire Regional Composting (dry metric tons)	0	1,722	1,722	
Tule Ranch AZ (land application) (wet tons)	24,801	54,512	79,313	38%
Tule Ranch AZ (land application) (dry metric tons)	5,498	13,137	18,635	
Total Wet Tons	**137,608**	**69,288**	**206,896**	**100%**
Total Dry Metric Tons	**30,499**	**16,607**	**47,106**	

Summary of Pollutants

OC San's Biosolids Monthly Compliance Reports (Appendix A) compare the concentration limits of the pollutants listed in 40 CFR 503 to OC San's average biosolids concentrations for each plant. The average concentrations of all pollutants in OC San's biosolids are typically an order of magnitude below the conservative *Table-1 Ceiling Limits* and *Table 3 Exceptional Quality Limits* found in 40 CFR Part 503, which were based on an extensive health risk assessment to ensure that biosolids are safe for recycle to build healthy soil.

Since 1976, OC San's Pretreatment Program has been effective in lowering the average mass of metals discharged to the marine environment by 99% and the total mass of metals in the influent sewage by 84%, thereby ensuring OC San's biosolids can be recycled to farm fields with low metals concentrations. Furthermore, OC San's influent wastewater meets drinking water standards for metals. Appendix B contains the biosolids chapter excerpt of the OC San Pretreatment Program Annual Report (ocsd.com/PreTreatAnnual, Chapter 8) that includes graphs of metals in OC San's biosolids.

In accordance with OC San's NPDES permit, biosolids are also tested semi-annually for all pollutants listed under Section 307(a) of the Clean Water Act. Appendix C contains the summary of the priority pollutants analyzed in the plants' biosolids.

Determination of Hazardousness

OC San's biosolids' pollutant concentrations are significantly below the state and federal maximum contaminant concentrations for determining a hazardous waste. See OC San's biosolids monitoring data in Appendix C, Summary of Priority Pollutants and Trace Constituents Analysis.

Legal Definitions

OC San's 2012 Ocean Discharge NPDES permit requires OC San to test its biosolids annually for hazardousness in accordance with 40 CFR Part 261. Hazardous waste is also defined under the provisions of California Code of Regulations, Title 22, Chapter 11, Article 5, and Arizona Revised Statutes, Title 49, Chapter 5, Article 2.

Determination Summary

OC San's biosolids are determined to be non-hazardous based on the following evaluation:

- OC San's biosolids are not ignitable, corrosive, reactive, nor toxic in accordance with the federal regulatory definitions in 40 CFR Part 261.
- OC San performs semi-annual testing of an extensive list of organic and inorganic compounds to verify the continued non-hazardousness of our biosolids.
- When the results are non-detectable, OC San enters the method detection limit in the evaluation spreadsheet that compares the data to regulatory limits.

Biosolids Management System

OC San continues to utilize a biosolids management system approach to effectively administer its biosolids program. The following sections highlight OC San's continued commitment to the biosolids management system.

Communications

OC San has continued transparent communications during this reporting period. OC San shares timely updates including biosolids news, annual compliance reports, biosolids videos, updated OC San resources such as the biosolids allocation map and Biosolids Contractor Requirements document. In 2020 the following items were posted or updated on OC San's biosolids website:

- Monthly compliance reports and data (ocsd.com/nani),
- Annual compliance reports (ocsd.com/503), and
- Biosolids allocation map (ocsd.com/map).

Contractor Oversight Program

OC San has continued our strong contractor oversight program:

- No Notice of Violations (NOVs) were issued for OC San's active biosolids contractors,

- Performed 9 contractor site inspections,
- No contractor issues,
- No inspection findings,
- No odor complaints, and
- Performed 55 hauling inspections, which reached 38 out of 39 regular drivers (97%) this year. There are 27 active drivers (69%) who are currently on OC San's "Honor Roll" for excellence in their truck cleanliness, knowledge of biosolids and emergency protocol by successfully passing three consecutive hauler inspections.

Goals and Targets

The 2019 Strategic Plan is a guiding document that provides a framework that directs our work. Every two years, the Strategic Plan is reviewed, updated, and submitted for approval by the Board of Directors. Two initiatives are related to biosolids (Food Waste Treatment Policy and Biosolids Management Policy) and updates are provided in the Accomplishments section. The Strategic plan is available on the OC San Strategic Planning website (https://www.ocsd.com/services/strategic-planning).

Biosolids Program Policy

The Biosolids Program Policy, originally adopted in 1999 and amended several times over the years, is a policy committing the agency to support biosolids beneficial reuse (organics recycling). The most recent commitments, OC San Resolution 13-03 (www.ocsd.com/policy), and OC San's performance relative to these commitments are reported below.

Table 3 – Policy Performance

Policy Commitment	2020 Performance
1. Commit to sustainable biosolids program. Support the recycling of biosolids.	OC San has demonstrated effective pretreatment, water and solids treatment operations, compliance, capital improvements, technology research and planning, and biosolids contractor oversight programs. See the Accomplishments at the beginning of this report.
2. Strive to balance financial, environmental, and societal considerations when making biosolids decisions.	OC San weighs these considerations and watches for issues that would alter the balance on a daily basis. See Ten Tenets reporting table below and the most current allocation map(www.ocsd.com/map), which demonstrate how OC San balances these considerations.
3. Utilize a biosolids management system to maintain a sustainable and publicly supported biosolids program.	OC San continues to maintain our biosolids management system as outlined in this section.
4. Diversify portfolio of offsite biosolids management options with multiple biosolids contractors, markets, facilities, and maintaining fail-safe	See Table 2 for breakdown of our active biosolids management options. See Table 4 for the Ten Tenets.

Table 3 – Policy Performance	
Policy Commitment	**2020 Performance**
back-up capacity of at least 100% of its daily biosolids production.	
5. Research and implement ways to reduce the volume of biosolids at the treatment plants to minimize the need for offsite management.	As mentioned in the "Treatment Plants and Program Updates" section above, OC San's production of biosolids has reduced by 35% since the centrifuges fully commissioned in 2019 (2018 vs. 2020). OC San's Research program actively seeks opportunities for process area improvements, including solids (see Accomplishments section). OC San is continuing to monitor the Supercritical Water Oxidation technology (www.scfi.eu) and the progress towards a feasible pilot plant.
6. Support continuing research of biosolids benefits and potential safety concerns.	In July 2020, the California State Water Resource Control Board issued OC San and most other treatment plants an order to sample our wastewater and biosolids for a list of polyfluoroalkyl constituents (abbreviated as PFAS). The quarterly sampling will start in the first quarter of 2021 and will conclude with the Summer 2021 sampling event. The State regulators will use this data to determine presence and absence of the constituents that will help in future policy or regulatory planning. In addition, OC San is supporting several PFAS research projects. OC San has access to the Northwest Biosolids' library (www.nwbiosolids.org). The library contains references to over 2,600 biosolids-related research articles references. Northwest Biosolids sends a monthly theme-based, relevant summary of research to its members, so we can easily digest pertinent scientific information and better communicate with interested parties. Northwest Biosolids also has a free monthly e-Bulletin for non-members. See Research Program in Accomplishments.
7. Demonstrate the benefits of biosolids compost by using it at the District's facilities.	OC San maintains compost piles at each plant. This compost is available to our employees and our landscape contractor to demonstrate the benefits of compost. OC San encourages employees to share their compost use photos. OC San continues long-term monitoring of our composted biosolids demonstration planter that contains drought-tolerant and native species.

Ten Tenets of OC San's Biosolids Management Plan

Read more on OC San's Ten Tenets and the Biosolids Master Plan at ocsd.com/bmp.

Table 4 – Ten Tenets of Biosolids Management Performance	
Tenet Commitment	**2020 Performance**
1. Allocate up to 50 percent of biosolids per biosolids contractor.	Each contractor received **less than 50%** of OC San's biosolids. See Table 2 for relative tonnage distribution this year. See OC San's current map of where OC San's biosolids are allocated at ocsd.com/map.
2. Allocate up to 50 percent of biosolids to each geographic end use market.	**Sixty two percent (62%)** of OC San's biosolids were turned into **compost at five (5) regional facilities**. Combined, these facilities distributed **221,561 tons** of composted biosolids in the following **11 geographic markets** (almost doubling counties from 2019): • 28.7% to San Bernardino County (**7% decrease** over last year), • 24.9% to Riverside County (**8% decrease** over last year), • 13.8% to Kern County (**2% decrease** over last year), • 11.8% to Los Angeles County (**3% increase** over last year), • 5.3% to Orange County (**4% increase** over last year), • 4.2% to Madera County (**4.2% increase** over last year), • 3.5% to San Diego County (**4% increase** over last year), • 2.7% to Maricopa County, Arizona (**3% decrease** over last year), • 2.2% to Fresno County (**2% increase** over last year), • 1.9% Kings County (**2% increase** over last year), • 0.9% Tulare County (**1% increase** over last year), and • 0.2% Clark County, Nevada (**0.2% increase** over last year). The remaining **38%** of OC San's biosolids were used to raise crops, producing **7,975 tons of sudan, oats, sorghum, and alfalfa for use in Arizona, California, and New Mexico**.
3. Maintain at least three (3) different biosolids management facilities at any time.	OC San maintained **five (5)** different management facilities. See Table 2 for relative tonnage distribution this year. See OC San's current map of where OC San's biosolids are allocated at ocsd.com/map.
4. Maintain at least two (2) different biosolids management practices at any time.	OC San maintained **two (2)** different management practices, composting and land application (direct farming of feed crops with biosolids). See Table 2 for relative tonnage distribution this year. See OC San's current map of where OC San's biosolids are allocated at ocsd.com/map.
5. Maintain at least two (2) different hauling companies within the biosolids management portfolio.	OC San and its biosolids management contractors utilized **three (3)** different hauling companies (GIC, Tule Ranch/Western Express, and Denali Water Solutions).

Table 4 – Ten Tenets of Biosolids Management Performance	
Tenet Commitment	**2020 Performance**
6. Maintain at least 200 percent (2 times daily production) contingency capacity at end use sites.	OC San maintained biosolids management site contingency capacity of at least **1250% (12.5 times daily production)**.
7. Maintain 20 percent (1.2 times daily production) fail-safe hauling capacity.	OC San maintained a range of **42-92% (1.4-1.9 times daily production)** fail-safe hauling capacity.
8. Track and encourage development of emerging markets and/or end uses for biosolids, especially for local end use options.	The 2019 Strategic Plan developed by the Board of Directors and staff defines the strategic initiatives to be pursued by OC San and provides a basis for long-term financial, capital, and operational planning. The Biosolids Management Policy initiative in the document includes commitments to educate and advocate with the local, state, and federal agencies to assure biosolids will continue to be safely and legally used as a soil amendment and monitor and research constituents of emerging concern such as PFAS and microplastics that may impact biosolids. See the Accomplishments section for an update on OC San's efforts this year on the Food Waste Treatment Policy and Biosolids Management Policy.
9. Allocate up to 10 percent of total biosolids production for participation in emerging markets, including participation in pilot or demonstration projects.	See the Accomplishments section for an update on OC San's efforts this year on the Biosolids Management Policy Initiative, which included a 2020 RFI for biosolids thermal conversion facilities.
10. Explore partnerships with area soil blenders to allow incorporation of OC San's Class A product into local markets.	OC San is following the work being done by San Francisco Public Utilities Commission on their research and development of their temperature-phase anaerobically digested biosolids soil blend product. In particular, the blend and product distribution to local markets. OC San's efforts will follow suit at the appropriate time since OC San facilities are expected to be commissioned in about 2030.

APPENDIX A

Table 1: OCSD Biosolids Wet and Dry Tonnage Distribution, Plant No. 1
Table 2: OCSD Biosolids Wet and Dry Tonnage Distribution, Plant No. 2
Biosolids Monthly Compliance Reports, January – December 2020

Table 1: OCSD Biosolids Wet and Dry Tonnage Distribution

Reclamation Plant No. 1, Fountain Valley, CA

Biosolids Generated	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual Average
Biosolids Total Solids (%)	24	25	24	23	25	25	25	24	24	25	24	25	**24**
Management Locations	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Synagro - Nusery Products CA - compost (wet tons)	7,149	6,959	6,775	5,674	6,523	6,674	6,555	6,520	6,474	5,832	4,897	5,376	**75,410**
Synagro - Nusery Products CA - compost (dry metric tons)	1,556	1,578	1,475	1,184	1,479	1,513	1,486	1,419	1,409	1,322	1,066	1,219	**16,708**
Synagro - South Kern - compost (wet tons)	0	0	0	0	0	0	0	0	0	756	1,057	1,306	**3,120**
Synagro - South Kern - compost (dry metric tons)	0	0	0	0	0	0	0	0	0	172	230	296	**698**
Synagro - AZ Soils - compost (wet tons)	0	0	24	277	479	100	0	0	0	0	0	0	**880**
Synagro - AZ Soils - compost (dry metric tons)	0	0	5	58	109	23	0	0	0	0	0	0	**194**
Liberty Compost CA (wet tons)	2,674	2,425	2,326	2,655	3,059	2,731	2,679	3,133	2,759	2,835	2,760	3,360	**33,398**
Liberty Compost CA (dry metric tons)	582	550	506	554	694	619	607	682	601	643	601	762	**7,401**
Inland Empire Regional Composting (wet tons)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inland Empire Regional Composting (dry metric tons)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tule Ranch AZ - land application (wet tons)	2,253	2,304	1,919	1,016	1,711	1,296	1,818	3,129	2,362	2,434	2,175	2,384	**24,801**
Tule Ranch AZ - land application (dry metric tons)	490	522	418	212	388	294	412	681	514	552	473	540	**5,498**
Total Wet Tons	**12,076**	**11,688**	**11,044**	**9,622**	**11,772**	**10,801**	**11,053**	**12,783**	**11,595**	**11,859**	**10,889**	**12,426**	**137,608**
Total Dry Metric Tons	**2,629**	**2,650**	**2,404**	**2,007**	**2,669**	**2,449**	**2,506**	**2,783**	**2,524**	**2,689**	**2,370**	**2,818**	**30,499**

Digester Cleanings	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Digester Cleaning Total Solids Percent (average)													
Synagro AZ Soils (compost) (wet tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro, AZ Soils (compost) (dry metric tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0.0**
Synagro Nursery Products (compost) (wet tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro, Nursery Products (compost) (dry metric tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0.0**
Digester Cleaning Total Wet Tons	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Dry Metric Tons	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
Total Wet Tons (Biosolids plus Digester Cleanings)	**12,076**	**11,688**	**11,044**	**9,622**	**11,772**	**10,801**	**11,053**	**12,783**	**11,595**	**11,859**	**10,889**	**12,426**	**137,608**
Total Dry Metric Tons (Biosolids plus Digester Cleanings)	**2,629**	**2,650**	**2,404**	**2,007**	**2,669**	**2,449**	**2,506**	**2,783**	**2,524**	**2,689**	**2,370**	**2,818**	**30,499**

Total Wet Tons 137,608

Total Dry Tons 30,499

Table 2: OCSD Biosolids Wet and Dry Tonnage Distribution

Wastewater Treatment Plant No. 2, Huntington Beach, CA

Biosolids Generated	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual Average
Biosolids Total Solids (%)	26	28	27	23	26	27	28	27	27	27	26	27	**27**
Management Locations	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Synagro - Nusery Products CA - compost (wet tons)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro - Nusery Products CA - compost (dry metric tons)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro - South Kern - compost (wet tons)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro - South Kern - (dry metric tons)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro- AZ Soils-compost (wet tons)	0	0	24	526	150	0	0	0	0	0	0	0	**700**
Synagro - AZ Soils-compost (dry metric tons)	0	0	6	110	35	0	0	0	0	0	0	0	**151**
Liberty Compost CA (wet tons)	811	1,703	1,241	25	330	457	606	379	611	304	178	127	**6,772**
Liberty Compost CA (dry metric tons)	191	402	293	6	78	108	143	89	144	72	42	30	**1,597**
Inland Empire Regional Composting (wet tons)	688	490	420	0	297	742	767	791	765	790	812	741	**7,304**
Inland Empire Regional Composting (dry metric tons)	162	115	99	0	70	175	181	186	180	186	192	175	**1,722**
Tule Ranch AZ - land application (wet tons)	5,050	5,198	4,985	4,716	5,211	5,264	4,228	3,742	4,019	4,200	3,722	4,176	**54,512**
Tule Ranch AZ - land application (dry metric tons)	1,191	1,320	1,221	984	1,229	1,289	1,074	916	984	1,029	878	1,023	**13,137**
Biosolids Total Wet Tons	**6,550**	**7,390**	**6,670**	**5,267**	**5,988**	**6,463**	**5,602**	**4,912**	**5,395**	**5,294**	**4,713**	**5,044**	**69,288**
Total Dry Metric Tons	**1,545**	**1,837**	**1,618**	**1,099**	**1,412**	**1,572**	**1,398**	**1,192**	**1,309**	**1,287**	**1,111**	**1,227**	**16,607**

Digester Cleanings	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Digester Cleaning Total Solids Percent (average)													
Synagro AZ Soils (compost) (wet tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro, AZ Soils (compost) (dry metric tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro Nursery Products (compost) (wet tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Synagro, Nursery Products (compost) (dry metric tons) (digester cleanings only)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Digester Cleaning Total Wet Tons	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Dry Metric Tons	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Wet Tons (Biosolids plus Digester Cleanings)	**6,550**	**7,390**	**6,670**	**5,267**	**5,988**	**6,463**	**5,602**	**4,912**	**5,395**	**5,294**	**4,713**	**5,044**	**69,288**
Total Dry Metric Tons (Biosolids plus Digester Cleanings)	**1,545**	**1,837**	**1,618**	**1,099**	**1,412**	**1,572**	**1,398**	**1,192**	**1,309**	**1,287**	**1,111**	**1,227**	**16,607**

Total Wet Tons
69,288

Total Dry Tons
16,607

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: January 1- 31, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 01/21/20, 01/28/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	1.2	9.2	1.8	51	550	14	16	38	12	820	8,100	44,000	52,000	8.1	23	59
Plant 1 Avg	1.2	8.8	1.7 DNQ	50	530	13	16	37	12	800	6,600	44,000	52,000		24	
Plant 2 Max/Min*	0.98	12	2.6	45	470	28	16	36	12	750	6,800	45,000	52,000	7.9	25	54
Plant 2 Avg	0.51 DNQ	12	2.6	45	450	24	16	36	12	740	5,000	45,000	52,000		26	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	29	27	29	Out of Service	29	30	30	30	30	26	26
Minimum Temperature (Min 95 °F)	97	98	98	Out of Service	97	98	99	98	98	98	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	26	26	26	26	Out of Service	Out of Service	27	Out of Service	Out of Service	26	26	27	Out of Service	27	27	26	Out of Service	27
Minimum Temperature (Min 95 °F)	98	100	99	100	Out of Service	Out of Service	99	Out of Service	Out of Service	100	100	99	Out of Service	98	100	98	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: January 1- 31, 2020

Certifications:

NPDES permit: *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 the 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.*

503 Class B: *I certify, under penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirement in 503.33(b)(1) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Jim Spears
Operations Manager
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(714) 593-7081

Ron Coss
Laboratory, Monitoring & Compliance Manager
rcoss@ocsd.com
(714) 593-7508

Cindy Vellucci			Peter Park Peter Park (Apr 13, 2020)	Lan C. Wiborg Lan C. Wiborg (Apr 13, 2020)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Peter Park	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: February 1- 29, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 02/18/2020, 02/25/2020

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.87	<6.2	2.3	49	540	12	18	42	<3.8	710	9,300	45,000	54,000	7.9	24	52
Plant 1 Avg	0.75	<6.2	2.1 DNQ	45	510	12	16	39	<3.8	680	8,700	44,000	53,000		25	
Plant 2 Max/Min*	0.95	<5.6	2.4	43	460	17	17	48	<3.4	660	8,800	44,000	53,000	8.0	27	64
Plant 2 Avg	0.79	<5.6	2.2	38	410	16	15	40	<3.4	610	7,800	44,000	52,000		28	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	27	24	28	Out of Service	33	28	28	28	28	24	24
Minimum Temperature (Min 95 °F)	98	99	98	Out of Service	99	99	99	99	99	99	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	25	24	24	24	Out of Service	Out of Service	24	Out of Service	Out of Service	24	24	24	Out of Service	24	24	26	Out of Service	24
Minimum Temperature (Min 95 °F)	99	100	100	99	Out of Service	Out of Service	99	Out of Service	Out of Service	99	100	100	Out of Service	99	99	99	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: February 1- 29, 2020

Certifications:

NPDES permit: *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 the 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.*

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Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

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Cindy Vellucci		Rachel Van Exel (Apr 21, 2020)	Peter Park (Apr 21, 2020)	Lan C. Wiborg (Apr 22, 2020)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Peter Park	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: March 1- 31, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 03/17/2020, 03/24/2020

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.70	<1.4	1.9	50	620	13	17	40	<.99	830	8,000	47,000	55,000	7.9	24	61
Plant 1 Avg	0.67	<1.4	1.9	46	600	13	17	36	<.99	750	8,000	45,000	53,000		24	
Plant 2 Max/Min*	0.67	<1.3	3.1	46	540	19	20	46	<.91	780	5,500	49,000	54,000	8.0	26	57
Plant 2 Avg	0.58	<1.3	2.9	44	540	18	19	43	<.91	750	5,300	48,000	53,000		27	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	25	25	25	Out of Service	25	25	25	25	25	25	25
Minimum Temperature (Min 95 °F)	99	99	104	Out of Service	99	99	99	99	99	99	99

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	25	25	25	25	Out of Service	Out of Service	25	Out of Service	Out of Service	25	25	26	Out of Service	25	25	25	Out of Service	25
Minimum Temperature (Min 95 °F)	98	99	99	99	Out of Service	Out of Service	98	Out of Service	Out of Service	99	98	100	Out of Service	99	99	100	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: March 1- 31, 2020

Certifications:

NPDES permit: *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 the 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.*

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Ron Coss
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Cindy Vellucci			Peter Park Peter Park (May 14, 2020 14:41 PDT)	Lan C. Wiborg Lan C. Wiborg (May 14, 2020 14:45 PDT)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Peter Park	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: April 1- 30, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 04/21/20, 04/28/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	1.8	<1.6	2.1	50	560	14	19	40	<1.2	790	9,300	60,000	69,000	8.2	20	64
Plant 1 Avg	1.2	<1.6	2.0	50	550	14	19	39	<1.2	790	8,600	51,000	59,000		23	
Plant 2 Max/Min*	0.62	<1.7	4.0	55	630	21	27	52	<1.2	960	7,300	66,000	73,000	8.1	19	62
Plant 2 Avg	0.52	<1.7	3.4	49	550	20	24	46	<1.2	890	6,300	57,000	63,000		23	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	28	28	28	Out of Service	27	28	28	28	28	27	28
Minimum Temperature (Min 95 °F)	98	98	98	Out of Service	99	99	98	99	99	99	99

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	29	29	29	29	Out of Service	Out of Service	31	Out of Service	Out of Service	29	29	31	Out of Service	29	29	29	Out of Service	31
Minimum Temperature (Min 95 °F)	98	99	100	100	Out of Service	Out of Service	100	Out of Service	Out of Service	99	98	98	Out of Service	100	100	99	Out of Service	99

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: April 1- 30, 2020

Certifications:

NPDES permit: *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 the 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.*

503 Class B: *I certify, under penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirement in 503.33(b)(1) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Jim Spears
Operations Manager
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(714) 593-7081

Ron Coss
Laboratory, Monitoring & Compliance Manager
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(714) 593-7508

Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Peter Park (Jun 15, 2020 17:21 PDT)	Lan C. Wiborg (Jun 15, 2020 17:46 PDT)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Peter Park	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: May 1- 31, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 05/19/20, 05/20/20,05/26/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.52	<1.3	1.9	55	520	15	18	38	<0.94	840	8,000	47,000	55,000	8.1	25	57
Plant 1 Avg	0.51	<1.3	1.9	51	510	14	18	37	<0.94	810	8,000	46,000	54,000		25	
Plant 2 Max/Min*	0.60	<1.3	2.7	45	470	22	20	32	<0.93	850	5,300	51,000	56,000	8.1	25	63
Plant 2 Avg	0.60	<1.3	2.5	42	420	19	18	29	<0.93	740	5,200	48,000	53,000		26	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	25	25	25	Out of Service	24	25	25	25	25	25	25
Minimum Temperature (Min 95 °F)	98	99	98	Out of Service	99	98	99	99	99	99	99

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	26	26	30	26	Out of Service	Out of Service	27	Out of Service	Out of Service	28	26	27	Out of Service	26	25	26	Out of Service	27
Minimum Temperature (Min 95 °F)	99	99	102	100	Out of Service	Out of Service	99	Out of Service	Out of Service	99	99	100	Out of Service	99	100	100	Out of Service	99

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: May 1- 31, 2020

Certifications:

NPDES permit: *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 the 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.*

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Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Jim Spears jspears@ocsd.com
Operations Manager (714) 593-7081

Ron Coss rcoss@ocsd.com
Laboratory, Monitoring & Compliance Manager (714) 593-7508

Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Peter Park	Lan Wiborg
Cindy Vellucci (Jul 10, 2020 09:52 PDT)			Peter Park (Jul 13, 2020 18:46 PDT)	Lan C. Wiborg (Jul 14, 2020 07:11 PDT)

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: June 1- 30, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 06/02/20, 06/09/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.49	<1.3	1.9	59	530	15	20	42	<0.95	840	8,300	43,000	51,000	8.0	24	54
Plant 1 Avg	0.48	<1.3	1.7	55	490	14	18	36	<0.95	770	8,000	42,000	50,000		25	
Plant 2 Max/Min*	0.46	<1.3	2.9	63	490	23	22	36	<0.92	850	5,300	44,000	49,000	8.1	25	67
Plant 2 Avg	0.41	<1.3	2.7	57	460	22	21	33	<0.92	790	5,000	43,000	48,000		27	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	24	25	25	Out of Service	24	24	25	25	25	24	24
Minimum Temperature (Min 95 °F)	98	98	98	Out of Service	98	98	98	98	98	98	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	26	25	Out of Service	25	Out of Service	22	21	Out of Service	Out of Service	29	26	21	Out of Service	25	25	25	Out of Service	21
Minimum Temperature (Min 95 °F)	99	100	Out of Service	100	Out of Service	101	100	Out of Service	Out of Service	100	99	99	Out of Service	99	100	102	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).

* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).

** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: June 1- 30, 2020

Certifications:

NPDES permit: *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 the 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.*

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Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Jim Spears
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Ron Coss
Laboratory, Monitoring & Compliance Manager
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(714) 593-7508

Cindy Vellucci (Aug 10, 2020 12:54 PDT)			Reza Sobhani (Aug 11, 2020 10:28 PDT)	Lan C. Wiborg (Aug 11, 2020 11:15 PDT)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: July 1- 31, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 07/21/2020, 07/28/2020

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.54	<1.3	1.7	51	540	15	20	37	<0.95	820	8,400	47,000	55,000	8.2	25	64
Plant 1 Avg	0.49	<1.3	1.6	51	540	15	20	35	<0.95	790	8,200	46,000	54,000		25	
Plant 2 Max/Min*	0.49	<1.2	2.4	66	540	18	21	33	<0.87	770	4,700	46,000	51,000	8.2	27	71
Plant 2 Avg	0.47	<1.2	2.4	65	520	18	20	32	<0.87	770	4,700	45,000	50,000		28	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	25	26	26	Out of Service	24	25	25	25	26	25	25
Minimum Temperature (Min 95 °F)	97	98	98	Out of Service	98	98	98	98	98	97	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	26	28	Out of Service	29	Out of Service	22	22	Out of Service	Out of Service	28	28	22	Out of Service	28	28	28	Out of Service	23
Minimum Temperature (Min 95 °F)	97	100	Out of Service	97	Out of Service	101	100	Out of Service	Out of Service	100	100	99	Out of Service	99	100	100	Out of Service	101

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: July 1- 31, 2020

Certifications:

NPDES permit: *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 the 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.*

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Jim Spears
Operations Manager
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Ron Coss
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rcoss@ocsd.com
(714) 593-7508

Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan C. Wiborg
Cindy Vellucci (Sep 17, 2020 13:17 PDT)	Deirdre Bingman (Sep 17, 2020 13:53 PDT)		Reza Sobhani (Sep 23, 2020 12:46 PDT)	Lan C. Wiborg (Sep 23, 2020 13:57 PDT)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: August 1- 31, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 08/18/20, 08/25/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	1.1	<1.4	1.7	50	570	13	21	38	<1.0	830	9,400	42,000	51,000	7.9	23	50
Plant 1 Avg	0.99	<1.4	1.6	50	470	13	21	38	<1.0	810	8,900	41,000	49,000		24	
Plant 2 Max/Min*	0.62	<1.2	2.3	66	500	17	21	29	<0.87	740	6,800	37,000	43,000	7.9	27	72
Plant 2 Avg	0.52	<1.2	2.3	64	490	17	21	28	<0.87	740	6,600	37,000	43,000		27	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	22	23	22	Out of Service	21	22	22	22	22	22	22
Minimum Temperature (Min 95 °F)	98	98	98	Out of Service	98	98	98	98	98	98	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	30	32	Out of Service	32	Out of Service	25	25	32	32	25	Out of Service	32	32	32	Out of Service	25
Minimum Temperature (Min 95 °F)	97	99	Out of Service	99	Out of Service	100	97	100	100	99	Out of Service	100	100	100	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).

* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).

** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: August 1- 31, 2020

Certifications:

NPDES permit: *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 the 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.*

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Jim Spears
Jim Spears (Dec 16, 2020 10:11 PST)

Jim Spears — jspears@ocsd.com
Operations Manager — (714) 593-7081

Ron Coss — rcoss@ocsd.com
Laboratory, Monitoring & Compliance Manager — (714) 593-7508

Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan Wiborg
Cindy Vellucci (Dec 15, 2020 15:21 PST)	Deirdre Bingman (Dec 15, 2020 15:39 PST)		Reza Sobhani (Dec 16, 2020 09:27 PST)	Lan C. Wiborg (Dec 16, 2020 09:29 PST)

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: September 1- 30, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 09/15/20, 09/22/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.66	<1.4	1.6	52	670	3.4	20	35	<1.0	900	10,000	54,000	64,000	7.9	23	62
Plant 1 Avg	0.57	<1.4	1.5	51	660	3.3	20	35	<1.0	880	10,000	50,000	60,000		24	
Plant 2 Max/Min*	0.74	<1.2	2.1	56	510	6.7	21	34	<0.89	780	8,400	45,000	53,000	8.0	26	69
Plant 2 Avg	0.68	<1.2	2.1	55	500	6.5	20	33	<0.89	770	7,500	42,000	50,000		27	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	23	24	24	Out of Service	22	23	23	24	23	23	23
Minimum Temperature (Min 95 °F)	97	98	98	Out of Service	97	98	97	98	97	97	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	28	28	Out of Service	29	Out of Service	24	24	28	29	25	Out of Service	28	28	28	Out of Service	26
Minimum Temperature (Min 95 °F)	99	100	Out of Service	103	Out of Service	100	101	100	100	99	Out of Service	100	101	99	Out of Service	99

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: September 1- 30, 2020

Certifications:

NPDES permit: *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 the 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.*

503 Class B: *I certify, under penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirement in 503.33(b)(1) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Jim Spears
Jim Spears (Jan 11, 2021 09:02 PST)

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Cindy Vellucci (Dec 15, 2020 16:04 PST)	Deirdre Bingman (Dec 16, 2020 07:07 PST)		Reza Sobhani (Dec 17, 2020 15:35 PST)	Lan C. Wiborg (Jan 8, 2021 13:42 PST)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: October 1-31, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 10/20/20, 10/27/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.78	8.9 DNQ	1.2	43	560	2.9	18	39	6.8	770	9,600	52,000	62,000	7.9	24	64
Plant 1 Avg	0.60	8.8 DNQ	1.2	43	550	2.2 DNQ	18	36	6.3	750	9,400	49,000	59,000		25	
Plant 2 Max/Min*	0.53	14	2.1	47	530	6.2	20	27	6.9	720	6,700	50,000	56,000	7.8	27	65
Plant 2 Avg	0.47	14	2.0	47	500	6.2	20	26	6.9	710	6,600	47,000	54,000		27	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	27	27	27	Out of Service	26	27	27	27	27	27	27
Minimum Temperature (Min 95 °F)	97	97	98	Out of Service	98	97	98	97	98	98	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	30	30	Out of Service	30	Out of Service	29	29	30	30	29	Out of Service	29	29	29	Out of Service	30
Minimum Temperature (Min 95 °F)	99	100	Out of Service	102	Out of Service	100	99	100	100	100	Out of Service	100	101	100	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: October 1-31, 2020

Certifications:

NPDES permit: *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 the 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.*

503 Class B: *I certify, under penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirement in 503.33(b)(1) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Jim Spears (Jan 5, 2021 11:39 PST)

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Cindy Vellucci (Dec 31, 2020 14:14 PST)	Deirdre Bingman (Dec 31, 2020 15:08 PST)		Reza Sobhani (Jan 4, 2021 13:08 PST)	Lan C. Wiborg (Jan 4, 2021 13:29 PST)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan Wiborg

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: November 1-30, 2020

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 11/03/20, 11/17/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.69	11	1.2	44	540	2.7	18	34	13	840	8,700	51,000	58,000	7.8	23	66
Plant 1 Avg	0.66	10.5 DNQ	1.1	44	530	2.5	18	34	9.7	800	7,800	49,000	57,000		24	
Plant 2 Max/Min*	0.84	20	2.3	51	520	5.9	22	31	7.7	850	6,500	51,000	57,000	7.9	22	69
Plant 2 Avg	0.60	19	2.2	47	490	5.4	21	30	6.2	770	6,300	45,000	51,000		26	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	27	28	28	Out of Service	27	28	27	28	27	27	27
Minimum Temperature (Min 95 °F)	97	97	98	Out of Service	98	98	98	98	98	97	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	30	31	Out of Service	31	Out of Service	30	30	31	31	30	Out of Service	30	30	30	Out of Service	30
Minimum Temperature (Min 95 °F)	97	97	Out of Service	98	Out of Service	100	98	100	98	99	Out of Service	98	100	100	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: November 1-30, 2020

Certifications:

NPDES permit: *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 the 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.*

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Jim Spears
Jim Spears (Jan 6, 2021 08:04 PST)

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Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan Wiborg
Cindy Vellucci (Jan 5, 2021 11:25 PST)	Deirdre Bingman (Jan 5, 2021 13:06 PST)		Reza Sobhani (Jan 5, 2021 14:55 PST)	Lan C. Wiborg (Jan 5, 2021 14:56 PST)

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: December 1-31, 2020

This notice and necessary information demonstrate compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 12/01/20, 12/08/20

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.69	12	1.6	48	530	18	18	47	8.5	810	11,000	46,000	57,000	8.0	23	62
Plant 1 Avg	0.62	11 DNQ	1.6	46	530	11	18	44	8.5	810	11,000	44,000	55,000		25	
Plant 2 Max/Min*	0.49	19	2.6	52	490	6.9	22	33	8.4	800	8,600	40,000	49,000	8.0	25	73
Plant 2 Avg	0.44	17	2.5	46	450	5.3	20	30	8.4	730	7,500	40,000	47,000		27	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	27	27	27	Out of Service	26	27	27	27	27	26	26
Minimum Temperature (Min 95 °F)	97	98	99	Out of Service	99	98	97	98	97	98	97

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	31	31	Out of Service	32	Out of Service	31	31	31	32	31	Out of Service	31	31	31	Out of Service	31
Minimum Temperature (Min 95 °F)	98	98	Out of Service	98	Out of Service	99	98	100	100	99	Out of Service	98	100	101	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL).
* Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).
** MCRT based on a 15-Day Rolling Average.

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: December 1-31, 2020

Certifications:

NPDES permit: *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 the 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.*

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Jim Spears
Jim Spears (Jan 12, 2021 15:39 PST)

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Cindy Vellucci (Jan 12, 2021 10:57 PST)	Deirdre Bingman (Jan 12, 2021 14:01 PST)		Reza Sobhani (Jan 12, 2021 15:16 PST)	Lan C. Wiborg (Jan 12, 2021 15:24 PST)
Cindy Vellucci	Deirdre Bingman	Rachel Van Exel	Reza Sobhani	Lan Wiborg

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Example OCSD Batch Upload Spreadsheet for EPA database

Land Application Monitoring Data Batch Upload

General Instructions

1 Please use this spreadsheet to upload monitoring data for the Federal Biosolids Annual Report (40 CFR part 503).
2 Fill out both worksheets: Header and Monitoring Data.
3 Row 1 and 2 are static column headers that will be ignored during the upload.
4 Row 3 is where users start entering data for batch upload.
5 Row 1 is the column header. Headers with an asterisk (*) signifies required data therefore data must be entered in
6 Row 2 contains specific data types or codes/values acceptable for the upload.
7 If there are duplicate rows of data, the last saved record will take priority and overwrite previously saved duplicates.
8 Changing or adding columns is not allowed, it will trigger errors during an upload.
9 Changing or adding rows of records is allowed.
10 Acceptable file formats for upload are: .xls and .xlsx
11 Users will be notified via e-mail if there are any issues with the uploaded data.
12 Check uploaded data on the web application by refreshing the monitoring data pages.
13 Users may need to fix data issues on the web application after uploading their spreadsheets.

Header Worksheet

1 The following columns will be pre-populated with data for the specific Biosolids Annual Report:
SSUID
Compliance Monitoring Event No
Compliance Monitoring Period Start Date
Compliance Monitoring Period End Date
2 Compliance Monitoring Period Start and End Dates may be changed in the Excel spreadsheet for the upload.
3 If the SSUID and Compliance Monitoring Event No do not exist for the Biosolids Annual Report then the entire row
4 If user answers N in column: Do you have analytical results to report for this monitoring period? then the reason code must be filled in
5 If user answers Y in column: Are you reporting maximum pollutant concentrations that are equivalent to the monthly average pollutant concentrations for this compliance monitoring event? then all data in the Monitoring Data worksheet for Monthly Average Pollutant Concentration will be ignored.

Monitoring Data Worksheet

1 The following columns will be pre-populated with data for the specific Biosolids Annual Report:
SSUID
Compliance Monitoring Event No
Data Type
Sewage Sludge or Biosolids Parameter
2 If the SSUID and Compliance Monitoring Event No do not exist for the Biosolids Annual Report then the entire row
3 If the parameter doesn't exist for the SSUID, it will be ignored therefore will not be saved.
4 Valid value qualifiers are: < > = E J and also T for Pathogen Data only. If Value Qualifier column contains data then Parameter Value column must contain data for that row.
5 Parameter value must be numeric, max 10 numbers with a floating decimal. If Parameter Value column contains data then Value Qualifier must contain data for that row.
6 Valid no data indicator codes are: A B C D E F. If No Data Code column contains data then neither Value Qualifier nor Parameter Value columns may contain data for that row.
7 If each row contains data for all three columns: Value Qualifier, Parameter Value, and No Data Code then the row of
8 For each row of parameter, if columns are left blank (no data) for Value Qualifier, Parameter Value, and No Data Code then nothing will be saved to the database for that parameter. It will not overwrite existing data in the
9 For each row of parameter, if columns contain data for Value Qualifier, Parameter Value, and No Data Code then data in the uploaded file will be saved to the database for that parameter. It will overwrite existing data in the

Header

SSUID*	Compliance Monitoring Event No*	Compliance Monitoring Period Start Date*	Compliance Monitoring Period End Date*	Do you have analytical results to report for this monitoring period?*	Please indicate the reason for reporting no data for this compliance monitoring period.	Are you reporting maximum pollutant concentrations that are equivalent to the monthly average pollutant concentrations for this compliance monitoring event?*
[Numeric, eg, 001, 002]	[Numeric]	[Valid Format: mm/dd/yyyy]	[Valid Format: mm/dd/yyyy]	[Valid Values: Y, N]	[Valid Codes: A B C D E F. Must be entered if Do you have analytical results to report for this monitoring period? = N]	[Valid Values: Y, N. If Y, all monthly average pollutant concentration data will be ignored]
001	1	01/01/2019	01/31/2019	Y		N
001	2	02/01/2019	02/28/2019	Y		N
001	3	03/01/2019	03/31/2019	Y		N
001	4	04/01/2019	04/30/2019	Y		N
001	5	05/01/2019	05/31/2019	Y		N
001	6	06/01/2019	06/30/2019	Y		N
001	7	07/01/2019	07/31/2019	Y		N
001	8	08/01/2019	08/31/2019	Y		N
001	9	09/01/2019	09/30/2019	Y		N
001	10	10/01/2019	10/31/2019	Y		N
001	11	11/01/2019	11/30/2019	Y		N
001	12	12/01/2019	12/31/2019	Y		N
003	1	01/01/2019	01/31/2019	Y		N
003	2	02/01/2019	02/28/2019	Y		N
003	3	03/01/2019	03/31/2019	Y		N
003	4	04/01/2019	04/30/2019	Y		N
003	5	05/01/2019	05/31/2019	Y		N
003	6	06/01/2019	06/30/2019	Y		N
003	7	07/01/2019	07/31/2019	Y		N
003	8	08/01/2019	08/31/2019	Y		N
003	9	09/01/2019	09/30/2019	Y		N
003	10	10/01/2019	10/31/2019	Y		N
003	11	11/01/2019	11/30/2019	Y		N
003	12	12/01/2019	12/31/2019	Y		N
006	1	01/01/2019	01/31/2019	Y		N
006	2	02/01/2019	02/28/2019	Y		N
006	3	03/01/2019	03/31/2019	Y		N
006	4	04/01/2019	04/30/2019	Y		N
006	5	05/01/2019	05/31/2019	Y		N
006	6	06/01/2019	06/30/2019	Y		N
006	7	07/01/2019	07/31/2019	Y		N
006	8	08/01/2019	08/31/2019	Y		N
006	9	09/01/2019	09/30/2019	Y		N
006	10	10/01/2019	10/31/2019	Y		N
006	11	11/01/2019	11/30/2019	Y		N
006	12	12/01/2019	12/31/2019	Y		N

Monitoring Data

SSUID*	Compliance Monitoring Event No*	Data Type*	Sewage Sludge or Biosolids Parameter*	Value Qualifier	Parameter Value	No Data Code
[Numeric, eg, 001, 002]	[Numeric]	[Valid Values: Maximum Concentration Data | Monthly Average Pollutant Concentration Data | Pathogen Data | VAR Data | Total Nitrogen Data]	[List of Parameters based on SSUID]	[Valid Qualifiers: < > = E J and T for Pathogen Data]	[Numeric, Max 10, Floating Decimal. Cannot enter Value Qualifier, Parameter Value, and No Data Code together]	[Valid Codes: A B C D E F. Cannot enter Value Qualifier, Parameter Value, No Data Code together]
001	1	Maximum Concentration Data	Arsenic	=	16	
001	1	Maximum Concentration Data	Cadmium	J	1.8	
001	1	Maximum Concentration Data	Copper	=	490	
001	1	Maximum Concentration Data	Lead	=	14	
001	1	Maximum Concentration Data	Mercury	=	0.63	
001	1	Maximum Concentration Data	Molybdenum	=	14	
001	1	Maximum Concentration Data	Nickel	=	31	
001	1	Maximum Concentration Data	Selenium	<	2.6	
001	1	Maximum Concentration Data	Zinc	=	680	
001	1	VAR Data	Solids, total volatile percent removal	=	55	
001	1	Monthly Average Pollutant Data	Arsenic	=	16	
001	1	Monthly Average Pollutant Data	Cadmium	J	1.8	
001	1	Monthly Average Pollutant Data	Copper	=	420	
001	1	Monthly Average Pollutant Data	Lead	=	11	
001	1	Monthly Average Pollutant Data	Mercury	=	0.63	
001	1	Monthly Average Pollutant Data	Nickel	=	28	
001	1	Monthly Average Pollutant Data	Selenium	<	2.6	
001	1	Monthly Average Pollutant Data	Zinc	=	610	
001	1	Total Nitrogen Data	Total Nitrogen (TKN plus Nitrate-Nitrite)	=	57500	
001	2	Maximum Concentration Data	Arsenic	=	21	
001	2	Maximum Concentration Data	Cadmium	J	1.6	
001	2	Maximum Concentration Data	Copper	=	490	
001	2	Maximum Concentration Data	Lead	=	11	
001	2	Maximum Concentration Data	Mercury	=	0.91	
001	2	Maximum Concentration Data	Molybdenum	=	17	
001	2	Maximum Concentration Data	Nickel	=	36	
001	2	Maximum Concentration Data	Selenium	<	48	
001	2	Maximum Concentration Data	Zinc	=	590	
001	2	VAR Data	Solids, total volatile percent removal	=	60	
001	2	Monthly Average Pollutant Data	Arsenic	=	20	
001	2	Monthly Average Pollutant Data	Cadmium	J	1.4	
001	2	Monthly Average Pollutant Data	Copper	=	450	
001	2	Monthly Average Pollutant Data	Lead	=	11	
001	2	Monthly Average Pollutant Data	Mercury	=	0.89	
001	2	Monthly Average Pollutant Data	Nickel	=	35	
001	2	Monthly Average Pollutant Data	Selenium	<	48	
001	2	Monthly Average Pollutant Data	Zinc	=	570	
001	2	Total Nitrogen Data	Total Nitrogen (TKN plus	=	51500	
001	3	Maximum Concentration Data	Arsenic	=	13	
001	3	Maximum Concentration Data	Cadmium	J	1.5	
001	3	Maximum Concentration Data	Copper	=	440	
001	3	Maximum Concentration Data	Lead	=	12	
001	3	Maximum Concentration Data	Mercury	=	1.4	
001	3	Maximum Concentration Data	Molybdenum	=	15	
001	3	Maximum Concentration Data	Nickel	=	34	
001	3	Maximum Concentration Data	Selenium	<	2.5	
001	3	Maximum Concentration Data	Zinc	=	640	

Monitoring Data

001	3	VAR Data	Solids, total volatile perc	=	55	
001	3	Monthly Average Pollutant Data	Arsenic	J	11	
001	3	Monthly Average Pollutant Data	Cadmium	J	1.2	
001	3	Monthly Average Pollutant Data	Copper	=	390	
001	3	Monthly Average Pollutant Data	Lead	=	9.9	
001	3	Monthly Average Pollutant Data	Mercury	=	1.1	
001	3	Monthly Average Pollutant Data	Nickel	=	31	
001	3	Monthly Average Pollutant Data	Selenium	<	2.5	
001	3	Monthly Average Pollutant Data	Zinc	=	570	
001	3	Total Nitrogen Data	Total Nitrogen (TKN plus	=	62000	
001	4	Maximum Concentration Data	Arsenic	=	14	
001	4	Maximum Concentration Data	Cadmium	J	1.4	
001	4	Maximum Concentration Data	Copper	=	720	
001	4	Maximum Concentration Data	Lead	=	11	
001	4	Maximum Concentration Data	Mercury	=	1.0	
001	4	Maximum Concentration Data	Molybdenum	=	18	
001	4	Maximum Concentration Data	Nickel	=	32	
001	4	Maximum Concentration Data	Selenium	<	2.6	
001	4	Maximum Concentration Data	Zinc	=	700	
001	4	VAR Data	Solids, total volatile perc	=	58	
001	4	Monthly Average Pollutant Data	Arsenic	J	13	
001	4	Monthly Average Pollutant Data	Cadmium	J	1.3	
001	4	Monthly Average Pollutant Data	Copper	=	560	
001	4	Monthly Average Pollutant Data	Lead	=	11	
001	4	Monthly Average Pollutant Data	Mercury	=	0.97	
001	4	Monthly Average Pollutant Data	Nickel	=	30	
001	4	Monthly Average Pollutant Data	Selenium	<	2.6	
001	4	Monthly Average Pollutant Data	Zinc	=	640	
001	4	Total Nitrogen Data	Total Nitrogen (TKN plus	=	65000	
001	5	Maximum Concentration Data	Arsenic	J	7.7	
001	5	Maximum Concentration Data	Cadmium	J	1.2	
001	5	Maximum Concentration Data	Copper	=	370	
001	5	Maximum Concentration Data	Lead	=	11	
001	5	Maximum Concentration Data	Mercury	=	0.83	
001	5	Maximum Concentration Data	Molybdenum	=	14	
001	5	Maximum Concentration Data	Nickel	=	23	
001	5	Maximum Concentration Data	Selenium	<	2.5	
001	5	Maximum Concentration Data	Zinc	=	540	
001	5	VAR Data	Solids, total volatile perc	=	68	
001	5	Monthly Average Pollutant Data	Arsenic	J	7.3	
001	5	Monthly Average Pollutant Data	Cadmium	J	1.2	
001	5	Monthly Average Pollutant Data	Copper	=	360	
001	5	Monthly Average Pollutant Data	Lead	=	9.9	
001	5	Monthly Average Pollutant Data	Mercury	=	0.83	
001	5	Monthly Average Pollutant Data	Nickel	=	23	
001	5	Monthly Average Pollutant Data	Selenium	<	2.5	
001	5	Monthly Average Pollutant Data	Zinc	=	520	
001	5	Total Nitrogen Data	Total Nitrogen (TKN plus	=	58500	
001	6	Maximum Concentration Data	Arsenic	J	12	
001	6	Maximum Concentration Data	Cadmium	=	2.2	
001	6	Maximum Concentration Data	Copper	=	610	
001	6	Maximum Concentration Data	Lead	=	13	
001	6	Maximum Concentration Data	Mercury	=	1.3	
001	6	Maximum Concentration Data	Molybdenum	=	21	
001	6	Maximum Concentration Data	Nickel	=	38	
001	6	Maximum Concentration Data	Selenium	<	2.6	
001	6	Maximum Concentration Data	Zinc	=	820	
001	6	VAR Data	Solids, total volatile perc	=	63	

Monitoring Data

001	6	Monthly Average Pollutant Data	Arsenic	J	8.0	
001	6	Monthly Average Pollutant Data	Cadmium	J	2.0	
001	6	Monthly Average Pollutant Data	Copper	=	600	
001	6	Monthly Average Pollutant Data	Lead	=	13	
001	6	Monthly Average Pollutant Data	Mercury	=	1.0	
001	6	Monthly Average Pollutant Data	Nickel	=	36	
001	6	Monthly Average Pollutant Data	Selenium	<	2.6	
001	6	Monthly Average Pollutant Data	Zinc	=	810	
001	6	Total Nitrogen Data	Total Nitrogen (TKN plus	=	56500	

II.B.1. OC San Biosolids Tracking System (BTS) and Help Manual

Biosolids Tracking System Application
BTS

Biosolids Tracking System Overview

The Biosolids Tracking System (BTS) is designed to track each load of biosolids that leaves OCSD treatment plants to their final end-use. BTS provides timely, quality information to OCSD staff and Vendors. The process supports OCSD's certified Environmental Management System for biosolids and the pledge to continually improve the management of its biosolids.

BTS is an Internet based system that allows Vendors to view the load information as recorded at the District loading stations. Tickets are automatically created during the Truckloading process. O & M reviews each ticket, gives approval and adds any necessary comments. The Vendor then adds the site identification (Site ID), approves the transaction and adds any comments. Finally, EAD reviews each ticket, finalizes any pending issues and gives the final approval.

The Environmental Assessment Division (EAD) is required to track monthly and report annually to regulators the District biosolids management activities. The reporting involves the disclosure of the total mass of biosolids managed at each county.

Reports are available to all users to track Tickets, Transactions, Payment Status and Site Load information. Reports are generated as an Excel spreadsheet to be viewed or saved.

Status Updates present information on ticket status for each Vendor or Group to allow quick access to ticket approval. Scrolling News provides an area where OCSD can display news pertinent to your organization. In addition, Vendors can add news items for viewing by a specified group.

What's New in this Version

- The new Permit Management system allows online management of site permits for biosolids operations users through an effective, user friendly interface.
- The addition of the News Management scroll bar displays instant notification of biosolids announcements and communication of biosolids related news. Messages can be targeted to a specific group or available to all users.
- An improved User Management system eases user creation, rights and roles assignments, and user activation.
- Users must now create a secret question and answer to provide an additional layer of security. If you forget your password, you must answer your secret question to receive an email with your password.

How to Logon to the BTS Application

Since the BTS Application is an Internet based application, you access the application using Internet Explorer. Internet Explorer version 6.0 is recommended. If you do not have Internet Explorer version 6.0, please see your administrator.

Your administrator will provide you with the address to the BTS web site, your username and a temporary password. Please change your password when you first log on to the system.

To Logon to BTS:

- Enter your Logon ID. Your Logon ID is the entire email address. For example, John@yahoo.com. Be sure to enter the entire email address.
- Enter your password. The password is case sensitive.
- Click the **Next** button.
- If the information entered is incorrect, a message appears with helpful login tips.

Warning: If you enter the incorrect password 3 times, your account becomes locked. Contact your administrator to reactivate your account.

First Time Log in

If it is your first time logging into the system, you will be asked to create a secret question and answer. The secret question and answer is used in case you forget your password. It is mandatory to create a secret question and answer.

- Enter a *Question*. Examples are:
  - What is your dog's name
  - What is your favorite color, food, sport, etc.?
- Enter the *Answer*. You will need to provide the answer again if you forget your password.
- Click on **Submit**

Forgot your Password?

- Click on *Forgot your password?*
- Enter your **Email Address**
- Click **Next**
- Answer the secret question you provided when you first logged into the system.
- You will receive an email with your password.

Warning: For security purposes, if asked to save or remember your password, do not agree to save or remember your password.

BTS Home Page

The BTS *Home Page* contains status updates and news information for your group.

The *Status Update* scroll area provides information and links to pending, approved and unapproved tickets. To quickly access the Ticket Validation window, click on one of the *Status Updates*: **Pending Tickets, Approved Tickets, Unapproved Tickets**.

The *News and Events* scroll area provides links to news items and bulletins of interest. Items are entered through the **News Management** module. To stop the scrolling, simply place your mouse pointer in the window.

Across the bottom of the Home Page and all of the other windows are quick links to help you or provide information:

- **Home** – Returns you to the *Home Page*.
- **Help** – Provides you with the User Guide.
- **Contact Us** – Presents a list of telephone numbers and email addresses for contacts at OCSD.
- **Privacy Statement** – Links to the Privacy Statement for OCSD.
- **Disclaimer** – Links to the Disclaimer for OCSD.

BTS Operations Overview

The Operations Menu is the ticket validation area for the BTS application. Tickets are entered via the Truckloading system, then validated by O & M, the Vendor, and finally, EAD. O & M and EAD will see the approval status for each group. Vendors can see the details and approval status for their tickets that have been approved by O & M.

If tickets are marked as unapproved or later changed to unapproved, automatic emails are sent to the other groups to notify them of the non-approval. In addition, if a ticket is Unapproved, the ticket status for the previous group is changed to Pending.. For example, if the Vendor does not approve a ticket, then an email is sent to O & M and the ticket status for O & M is changed to pending. Unapproved tickets require comments to be entered to explain why the ticket is not approved.

O & M is responsible for:

- Reviewing the ticket information and entering any additional information such as optional ticket numbers received from the Vendors.
- Adding any necessary comments.
- Approving the ticket when all information is complete and accurate.
- Changing the Ticket Payment Status after the entire approval process is complete.

After O & M approves the ticket, the ticket is then available for the Vendor to review and approve. The scrolling Status Update area displays the incremented number of pending tickets available for the Vendor.

The Vendor is responsible for:

- Verifying the ticket details for accuracy and completeness.
- Adding the Site ID.
- Entering any comments if necessary.
- Approving the ticket when all information is complete and accurate.

After the Vendor approves the ticket, the ticket is then available for EAD to provide final approval. The scrolling Status Update area displays the incremented number of pending tickets available for EAD to approve

EAD is responsible for:

- Verifying the ticket information, including Site ID.
- Adding any necessary comments, or addressing any issues or comments.
- Giving final approval to the ticket.

Vendor Ticket Validation

Vendor Ticket Validation is the data entry and ticket validation area. When the window opens, a search for all pending transactions for all products automatically displays. The search results can be sorted by the column headings. Additional searches can be created using the following criteria:

- **Date Range**
- **Product**
- **Transaction Status**

Once the search is created and displayed, the Vendor is responsible for verifying the data is correct and updating the following information:

- **Site ID** - This is a required field.
- **Pending, Approved** or **Unapproved Status**
- **Ticket Details**
- **Comments** if needed.

A *Validation Summary* displayed at the bottom of the screen shows the total weights (lbs. and tons) for the 10 transactions displayed.

If a ticket is already approved by EAD, then the details cannot be changed. The Vendor must contact EAD and request the ticket status be changed to Unapproved. If the Vendor marks a ticket as Unapproved, then an email is automatically sent to EAD and O & M. In addition, the Transaction Status for O & M is changed to Pending..

To Create a New Search

- **Date Range** - Select the *Start* and *End* Date using the calendar icon.
- **Product** - Select the *Product*. A blank *Product* field will search for all products.
- **Transaction Status** - Check the desired *Transaction Status*. Multiple boxes can be checked. Checking *All* will automatically check all of the boxes.
- Click the *Search* button
- The results will display ten transactions per page.
- To **sort** the results, click on the underlined column headings

To Update Transaction Information

- Enter the *Site* information using the drop-down menu. This is a required field.
- Change the *Transaction Status* from **Pending** to **Approved** by clicking directly on the icon. If the transaction is not approved, click again to change it to **Unapproved. If a ticket is not approved, an email is sent to EAD and O & M and the Transaction Status for O & M is changed to Pending.**
- To approve **All** the transactions displayed, click the **Approve All** button.
- Click on the *Ticket #* and review the ticket details for accuracy.
- Enter or edit any ticket details, including **Comments** if needed. **Comments are required if the ticket is Unapproved**
- Click the **Submit** button. ***Warning: Changes are not saved until the Submit button is clicked.***
- Click the *Next* or *Previous* button to view the next ticket in the search window.

Warning: The ticket details are validated before any status change is completed. An error message

provides validation tips if the data is not valid.

To Show or Hide the Transaction Summary

- To **Show** the *Transaction Summary*, check the **Show/Hide** button.

Reports Overview

The BTS application provides a variety of reports in Excel format. You can view or save the reports to your computer and access them via Excel for sorting or editing. The following reports are available:

- **Transaction Reports** - can be generated using *Date Range, Product, Vendor, Transaction Status* and/or *Plant* criteria.
- **Ticket Number Reports** - displays ticket details for the ticket.
- **Site ID Reports** - includes *Site Information, Load Details, Site Load for County,* and *All County Details. Site Load Information* and *Site Load for County* can be generated using *Date Range, Product* and/or *Vendor* as additional criteria.
- **Invoice Reports** - ticket payment status to aid in invoice creation and reconciliation.

The report criteria is checked for required fields and accurate data when submitted. An error message displays helpful tips if required fields are not complete, or the data is not valid.

Reports list the type of report and the criteria used to generate the report. If a criteria field is blank, the report lists all items, grouped by the criteria. In addition, totals are printed at the bottom of each grouping.

Warning: The reports contain Cost Information. The Cost Information is used as an invoicing tool and should not be used for Financial purposes.

Transaction Status Updates

Transaction Status Updates allow you to view all the transactions that match a certain criteria. The selection criteria are:

- **Date Range**
- **Product**
- **Transaction Status**

Criteria can be combined to create reports. For example, if you want to view only the pending transactions for a date range, then select both the *Transaction Status* and the *Date Range* desired.

Warning: The reports contain Cost Information. The Cost Information is used as an invoicing tool and should not be used for Financial purposes.

To Generate a Transaction Status Report:

- Enter the selection criteria.
  - **Date Range** - Select the *From* and *To* Date for the range of transactions you wish to view.
  - **Product** - Select the *Product* from the drop down selection.
  - **Transaction Status** - Select the *Transaction Status*
    - Other selection criteria - depending on your access level you may be able to select other criteria such as *Vendor* or *Plant*. Vendors have access only to their own information.
- Click **Generate Report**
  - A *File Download* window opens asking if you want to open the file or save it to your computer. If you want to view the report, click on **Open**. If you want to save the report, click on **Save** and select the location where you want the file to be saved.

Ticket Number Updates

Ticket Number Update Reports allow you to view the details for a single ticket.

To Generate a Ticket Number Update Report:

- Enter the *Site ID*
  - Enter the ticket number. If you do not know the ticket number, you can look it up in the ticket validation screen.
- Click **Generate Report**
  - A *File Download* window opens asking if you want to open the file or save it to your computer. If you want to view the report, click on **Open**. If you want to save the report, click on **Save** and select the location where you want the file to be saved.

Site Detail Update Reports

There are four different Site Detail Update Reports:

- Information
- Load Details
- Load for County
- All County Details

Warning: The reports contain Cost Information. The Cost Information is used as an invoicing tool and should not be used for Financial purposes.

To Generate an Information Report:

- Enter the *Site ID*
- Click **Generate Report**
  - A *File Download* window opens asking if you want to open the file or save it to your computer. If you want to view the report, click on **Open**. If you want to save the report, click on **Save** and select the location where you want the file to be saved.

To Generate a Load Details Report:

- Enter the *Site ID* - this is a required field
- To narrow the scope of the report, enter additional criteria:
  - Date Range - Select the *From* and *To* Dates
  - Product - Select the product desired from the drop down selection
    - Vendor - If you have access to Vendor information, you may select the desired Vendor. Vendors have access only to their own information.
- Click **Generate Report**
  - A *File Download* window opens asking if you want to open the file or save it to your computer. If you want to view the report, click on **Open**. If you want to save the report, click on **Save** and select the location where you want the file to be saved.

To Generate a Load for County Report:

- Select the *County* - this is a required field
- Enter any additional criteria: *Date Range, Product* or *Vendor*
- Click **Generate Report**
  - A *File Download* window opens asking if you want to open the file or save it to your computer. If you want to view the report, click on **Open**. If you want to save the report, click on **Save** and select the location where you want the file to be saved.

To Generate an All County Details Report:

- Enter the *Date Range*
- Click whether to view data approved by Operations or by EAD

- Click **Generate Report**
  - A *File Download* window opens asking if you want to open the file or save it to your computer. If you want to view the report, click on **Open**. If you want to save the report, click on **Save** and select the location where you want the file to be saved.

Generate Invoice Reports

Generate Invoice Reports allow you to see the ticket payment status for tickets that match a certain criteria. It is available to all the groups to aid in invoice creation and reconciliation. Vendors can check to see which tickets have been approved and therefore are available for invoicing. The selection criteria are:

- **Date Range**
- **Payment Status**
- Other selection criteria - depending on your access level you may be able to select other criteria such as *Vendor* or *Plant*. Vendors have access only to their own information.

Criteria can be combined to create reports. For example, if you want to view only the unpaid transactions for a date range, then select both the *Payment Status* and the *Date Range* desired.

Warning: The Invoice Reports contain Cost information. The Cost information should not be used for Financial information.

To Generate an Invoice Report:

- Enter the selection criteria.
  - **Date Range** - Select the *From* and *To* Date for the range of transactions you wish to view.
  - **Payment Status** - Select the *Payment Status*
  - Other selection criteria - depending on your access level you may be able to select other criteria such as *Vendor* or *Plant*. Vendors have access only to their own information.
- Click **Generate Report**
- A *File Download* window opens asking if you want to open the file or save it to your computer. If you want to view the report, click on **Open**. If you want to save the report, click on **Save** and select the location where you want the file to be saved.

User Management

Only administrators can create new users or edit and delete existing users. Administrators can perform user management tasks for their own group. Please contact your administrator if you need assistance with User Management.

To Create a New User

- Click the icon next to **Add User**
- Enter the user's information. Fields with red asterisks are required fields.
- The user name must be an email address.
- Click the **Active** box next to the email address.
- *Security Levels* are:
    - *Group Administrator:* Can create, edit and delete users in addition to all functions of Data Entry security level.
    - *Data Entry:* Can enter data but cannot perform any user management.
    - *Read Only:* View access only

To Edit an Existing User

- Click on the user's email address.
- Edit any information necessary
- Click the **Active** button to activate the account
- Click the **Submit** button when finished.
- If a user has entered the wrong password more than 3 times, the account is marked inactive.

To Unlock an Existing User

- If a user has entered the wrong password more than 3 times, the account is marked inactive.
- Click on the user's email address.
- Click the **Active** button to activate the account
- Click the **Submit** button when finished.

To Delete an Existing User

- Check the *Delete* box next to the user's name.
- Click the **Submit** button

News Management

News Management provides an area to create and edit news bulletins that will scroll on the right-hand pane of the Home Page. A Search function allows users to find news items by date.

To Create a New News Item

- Click the **Add New** icon
- Enter the **Title.** This is the text that will display in the scroll bar.
- Enter a **Link** if needed.
- Enter the **Text** of the news item. You can cut and paste into this area.
- Enter the *Date On, Date Off, Time On, Time Off.* These are all required items.
- Check the boxes of the companies that will have access to see the news item. By default your own group will be checked.
- Click the **Submit** button.

To Edit a News Item

- Click the **Title**
- Edit any of the details necessary
- Click the **Submit** button.

To Delete a News Item

- Check the **Delete** box next to the item
- Click the **Submit** button.

Change Secret Question

The *Secret Question* is used to provide an additional layer of security if you forget your password. You will be given the question and you will need to provide the answer before your password will be sent to your email address. Examples of Secret Questions can be: What is your dog's name? What is your favorite food (color, sport, etc)?

To Change your Secret Question

- Enter your unique *Secret Question*
- Enter your *Answer.*
- Click on **Submit**

Change Password

The *Change Password* screen is used to change your password.

To Change Your Password

- Enter your *Current Logon Password*.
- Enter the *New Password*. Passwords must be between 6 and 15 alphanumeric characters and are case sensitive.
- Re-enter the password to confirm.
- Click the **Submit** button.

How to Contact Us

If you need to contact us regarding the BTS application, please send an email.

- On the **Contact Us** menu selection, select **Send Mail**
- An email form will appear addressed to the appropriate person at OCSD.

How to Logoff

To Logoff the BTS application, click on the **Logoff** menu selection. Please be sure to Logoff at the end of each day.

II.B.2. Site Inspections

Orange County Sanitation District
Environmental Department, Compliance (Biosolids)
Biosolids Management Facility Inspection Report
TEMPLATE: Composting Operations

SITE INFORMATION

Facility Name: Facility Address:

Onsite Contact: Email / Phone:

SITE INSPECTION DETAILS

Date / Time of Inspection:

OC San Inspector: Email / Phone:

Weather / Temperature: Wind Speed (mph) / Direction:

SUMMARY OF INSPECTION FINDINGS

Onsite Inspection Findings:

Inspection Opportunities and Positive Observations:

SUMMARY OF PREVIOUS INSPECTION FINDINGS & OPEN ISSUES

Previous Inspection Findings/Outcomes:

Current Open Issues or Findings from Monthly Reports:

SITE WALKTHROUGH

Odor & Nuisance Panel - *Determine Odor, Flies, Biosolids Offsite Tracking, and Dust levels at the following potentially problematic areas. Include odor source and vector type (if different).*

- LOCATION #1 – (Typically Entrance of Facility)
    - Observations:
    - Overall Evaluation:
- LOCATION #2 – (Typically Truck Wash/Catch Basin)
    - Observations:
    - Overall Evaluation:
- LOCATION #3 -
    - Observations:
    - Overall Evaluation:
- Overall level of odor at site:
- Overall fly presence at site:

Material Quality – *Determine if significant operational changes have been made or changes in incoming materials*.

- Bulking Material
    - What is the bulking material comprised of?:
        - Any changes since the last inspection?:
    - Appearance of material:
    - Comments/Notes:
- Active Compost
    - # of active piles/windrows:
    - Smoldering present?:
    - Appearance of material:
    - Comments/Notes:
- Final Product
    - Appearance of material:
    - Amount of final product being stored:
    - Comments/Notes:

Current Operations – *Inquire/observe to determine if any Operational, Permit, or Regulatory updates or changes have occurred regarding processes on site.*

- Any operational changes?:
- Any permit/regulatory changes?:

STAFF INTERVIEW

Set aside time to talk with site personnel to gather the following information:

- Any operational changes or planned changes?:
- Any permit or regulatory updates or changes?:
- How are sales/movement of product?:
- How's compliance going (Biosolids, wastewater, stormwater, air):
    - Any changes?:
- How's the vibe with the locals?:
    - Any communications / conversations with locals?:
- Any complaints (other than odor)?:
- Any non-LEA regulator visits/inspections?:
- Any other outreach? (press/media/tours):

RECORDS REVIEW

Request and review the following records:

- Temperature Logs
    - Date range reviewed:
    - Temperature at or above 55°C (131°F) for at least 15 days?:
    - Were there at least 5 turnings for each active windrow within that 15-day period?:
- Staff Training Logs
    - Date range reviewed:
    - Notes:
- Special Occurrences Log
    - Date range reviewed:
    - Notes:
- Load Checking Log
    - Date range reviewed:
    - Notes:
- Final Product Analytical Results
    - Date range reviewed:
    - Notes:

VERIFICATION OF OC SAN NPDES PERMIT STORAGE REQUIREMENTS

✓ | X - *NPDES VI.C.4.b.1.e*

- *Biosolids treatment, storage, use, or disposal shall not create a nuisance such as objectionable odors or flies.*

✓ | X - *NPDES VI.C.4.b.1.g*

- *If biosolids are stored for over two years from the time they are generated, the Discharger must ensure compliance with all requirements for surface disposal under 40 CFR 503, Subpart C, or must submit a written notification to USEPA and the State with the information specified under 40 CFR 503.20(b), demonstrating the need for longer temporary storage. During storage of any length for non-Class A biosolids, whether on the facility site or off-site, adequate procedures must be taken to restrict access by the public and domestic animals.*

✓ | X - *NPDES VI.C.4.b.1.h*

- *Any biosolids treatment, disposal, or storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect the site boundaries from erosion, and to prevent any conditions that would cause drainage from the materials to escape from the site. Adequate protection is defined as protection from at least a 100-year storm and the highest tidal stage which may occur.*

✓ | X - *NPDES VI.C.4.b.1.k*

- *The Discharger shall comply, if applicable, with WDRs issued by Regional Water Boards, or the State Water Board, to which jurisdiction the biosolids are transported and applied; and with other applicable State jurisdictions not limited to Arizona biosolids rules and regulations governing biosolids transport, treatment, and beneficial reuse.*

SUPPLEMENTAL INSPECTION PHOTOS

III.A.1. OC San Biosolids Policy Resolution

RESOLUTION NO. OCSD 13-03

A RESOLUTION OF THE BOARD OF DIRECTORS OF ORANGE COUNTY SANITATION DISTRICT IN SUPPORT OF BIOSOLIDS RECYCLING AND REPEALING RESOLUTION NO. OCSD 06-10

WHEREAS, the Orange County Sanitation District ("District") produces biosolids at its two wastewater treatment plants; and

WHEREAS, biosolids are the solid product of municipal wastewater processing which have been extensively and properly treated so that they may be safely recycled to amend soil directly, create composted soil amendments, produce energy, or other beneficial uses; and

WHEREAS, the District promotes the recycling of biosolids in a manner that is safe, environmentally beneficial, and is sensitive to the needs of the communities involved; and

WHEREAS, in 1993 the United States Environmental Protection Agency (EPA) established rules, which included a thorough health-risk assessment, regulating the treatment and use of biosolids (40 Code of Federal Regulations Part 503). These Regulations have since protected public health and the environment by ensuring the safe and beneficial recycling of biosolids when managed in accordance with the rules; and

WHEREAS, decades of use, research, and regulatory review and oversight have demonstrated the benefits and safety of biosolids; and

WHEREAS, the direct application of high-quality biosolids as a soil amendment is sustainable, safe, provides beneficial nutrients to the soil, sequesters significant amounts of carbon for a net carbon reduction, and is an environmentally-friendly alternative to – and reduces the need for – fossil-fuel intensive fertilizers, pesticides, and herbicides; and

WHEREAS, the production of compost for agricultural, commercial, and residential markets is sustainable, safe, provides beneficial nutrients to the soil, is a local source of recycled nutrients, and is an environmentally-friendly alternative to – and reduces the need for – fossil-fuel intensive fertilizers, pesticides, and herbicides; and

WHEREAS, the production of energy and other alternative products from biosolids can be sustainable, safe, and an environmentally-friendly option for utilizing the District's biosolids and ensuring continued diversity of the District's biosolids management options for sustainability; and

WHEREAS, it is the law of the State of California that municipalities divert recyclable materials from disposal in landfills and may be required to divert even more in the future. The District also recognizes that limited (up to 100 tons per day) use of local landfills can provide benefits including enhancing methane gas recovery

at the landfill, providing an in-county biosolids management option, increasing the diversity of the District's biosolids management options, and adding another low-cost option during the District's peak biosolids production period (until 2017), thereby increasing the District's biosolids program sustainability; and

WHEREAS, in order to promote a standard of excellence, the District maintains a Biosolids Management System and adheres to the principles of the National Biosolids Partnership's Code of Good Practice and best management practices of the California Water Environment Association's (CWEA) Manual of Good Practice for Agricultural Land Application of Biosolids; and

WHEREAS, in order to maintain the highest-quality biosolids for beneficial use, the District maintains a comprehensive and award-winning Source Control program that includes permits, and in some cases onsite treatment, for categorized industries, along with best management practices and outreach programs for non-industrial discharges to prevent pollutants entering the District's plants.

WHEREAS, reducing the volume of biosolids produced onsite, reduces impacts associated with managing biosolids offsite such as traffic and truck emissions; and

WHEREAS, the District supports ongoing research regarding emerging biosolids-related questions including studies performed by the EPA, Water Environment Research Foundation, and the National Science Foundation to ensure the continued safety of biosolids recycling practices; and

WHEREAS, by 2003 most agriculturally-based counties in south and central California placed restrictive ordinances or bans on farming with biosolids; therefore highlighting the criticality for strong biosolids management practices including a biosolids management system and proactive education and outreach; and

WHEREAS, the 2003-2004 Orange County Grand Jury issued findings related to public concerns regarding farming with biosolids and recommended the District's continued participation in national surveys, research on emerging concerns, and incident trackers in order to demonstrate the District's ongoing commitment to protecting public health and address nuisances; and

WHEREAS, the District commissioned a Long-Range Biosolids Management Plan that was completed in 2003 and included recommendations with the goal of a long-term sustainable biosolids program. The Plan recommended diversity and fail-safe back-ups as ways to prevent biosolids market failures and thereby maintain reliability, minimize costs, and reduce risks to the District.

The Plan also valued using local (in-county) options to reduce environmental impacts associated with hauling greater distances, create a closed-loop system (solids generated, treated, and used in the same county – including costs and revenues), and accept social responsibility for our biosolids use to increase community acceptance at out-of-county biosolids facilities.

The District continues to implement the recommendations of the Plan including maintaining a diverse program of biosolids management (multiple biosolids

contractors, markets, and facilities), maintaining fail-safe back-up capacity, and developing in-county facilities and markets.

NOW, THEREFORE, the Board of Directors of Orange County Sanitation District,

DOES HEREBY RESOLVE, DETERMINE, AND ORDER:

Section 1. The District is committed to a sustainable biosolids program.

Section 2. The District is committed to diversifying its portfolio of offsite biosolids management options with multiple biosolids contractors, markets, facilities, and maintaining fail-safe back-up capacity at least 100% of its daily biosolids production.

Section 3. The District declares its support of recycling biosolids.

Section 4. The District strives to balance financial, environmental, and societal considerations when making biosolids decisions.

Section 5. The District is committed to utilize a biosolids management system to maintain a sustainable and publicly supported biosolids program.

Section 6. The District is committed to researching and implementing ways to reduce the volume of biosolids at the treatment plants to minimize the need for offsite management.

Section 7. The District declares its support of continuing to research biosolids benefits and potential safety concerns.

Section 8. The District demonstrates the benefits of biosolids compost by using it at the District's facilities.

Section 9. Resolution No. OCSD 06-10 is hereby repealed.

Section 10. This Resolution shall become effective immediately upon its adoption.

PASSED AND ADOPTED at a regular meeting of the Board of Directors held on the day of February 27, 2013.

Troy Edgar, Chair

ATTEST:

Maria E. Ayala, Clerk of the Board

III.A.2. National Biosolids Partnership Code of Good Practice

Biosolids Management Program
Code of Good Practice

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. Those who embrace the Code and participate in the National Biosolids Partnership (NBP) commit to "do the right thing." Specifically, code subscribers and NBP 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.

NBP Biosolids Management Program: To develop a Biosolids Management Program that includes a method of independent third-party verification to ensure effective ongoing biosolids management.

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 biosolids 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 a Biosolids Management Program.

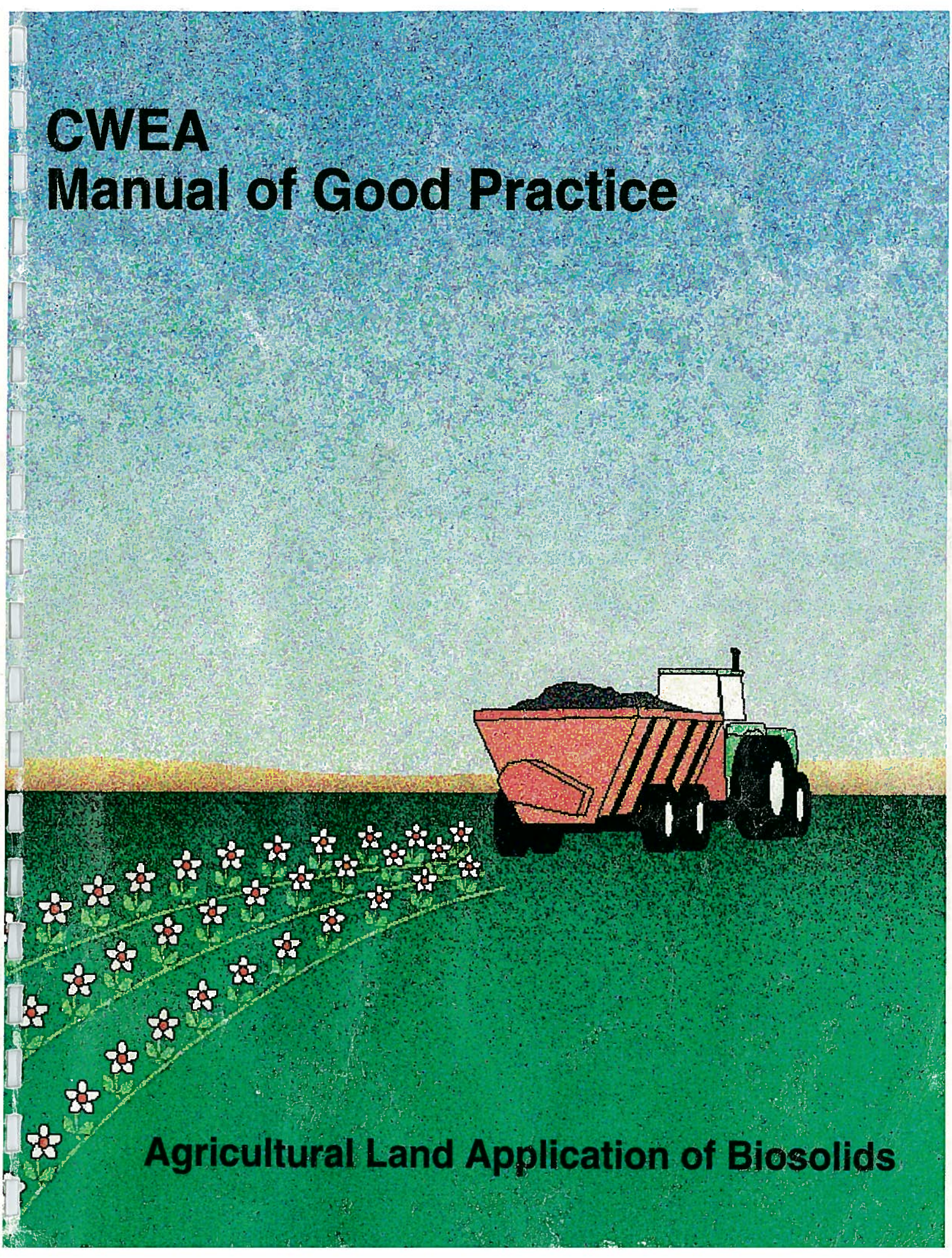
Preventive Maintenance: To prepare and implement a plan for preventive maintenance for equipment used to manage biosolids and wastewater solids.

Continual Improvement: To seek continual improvement in all aspects of biosolids management.

Communications: To provide methods of effective communication with gatekeepers, stakeholders, and interested citizens regarding the key elements of each Biosolids Management Program, including information relative to program performance.

III.A. 3. CWEA Manual of Good Practice

CWEA
Manual of Good Practice



Agricultural Land Application of Biosolids

MANUAL OF GOOD PRACTICE
FOR
AGRICULTURAL LAND APPLICATION OF BIOSOLIDS

Prepared by the

CWEA Steering Committee
on Manual of Good Practice for
Agricultural Land Application of Biosolids

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This Manual has been reviewed by the Biosolids Committee of the California Water Environment Association. The review does not indicate that the contents of this Manual reflect the views or policies of the California Water Environment Association. The use of trade names or commercial products does not constitute endorsement or recommendation for use by the California Water Environment Association.

TABLE OF CONTENTS

INTRODUCTION
Chapter One

I. OBJECTIVES

The California Water Environment Association (CWEA) has prepared this Manual of Good Practice for Agricultural Land Application of Biosolids (Manual). The purpose of this document is to establish a standard of excellence when applying biosolids to agricultural land. Issues addressed include nuisance abatement, good neighbor relationships, and shared responsibilities among all parties with the goal of enhancing biosolids recycling. The objectives are to:

- Promote responsible and informed biosolids management and public acceptance of biosolids recycling.
- Recommend good management practices for agricultural land application of biosolids to ensure the safe and beneficial use of biosolids.
- Encourage statewide uniformity in the application of these practices.

The primary audience for the Manual consists of four groups: Generators, Transporters, Appliers, and Growers. Growers include land owners and lease holders, if applicable. A secondary audience includes farm advisors; cooperative extension agents; local, regional, and state regulators; residents; consultants; environmental organizations; and the general public. The Manual is written with the assumption that the audience has a basic understanding of land application practices and the federal biosolids regulation. Those wishing to become more familiar with these areas are encouraged to attend the CWEA Biosolids Land Application Training Course. The course provides both classroom and in-the-field training over a two-day period. Contact the CWEA Office for further information.

II. HISTORY

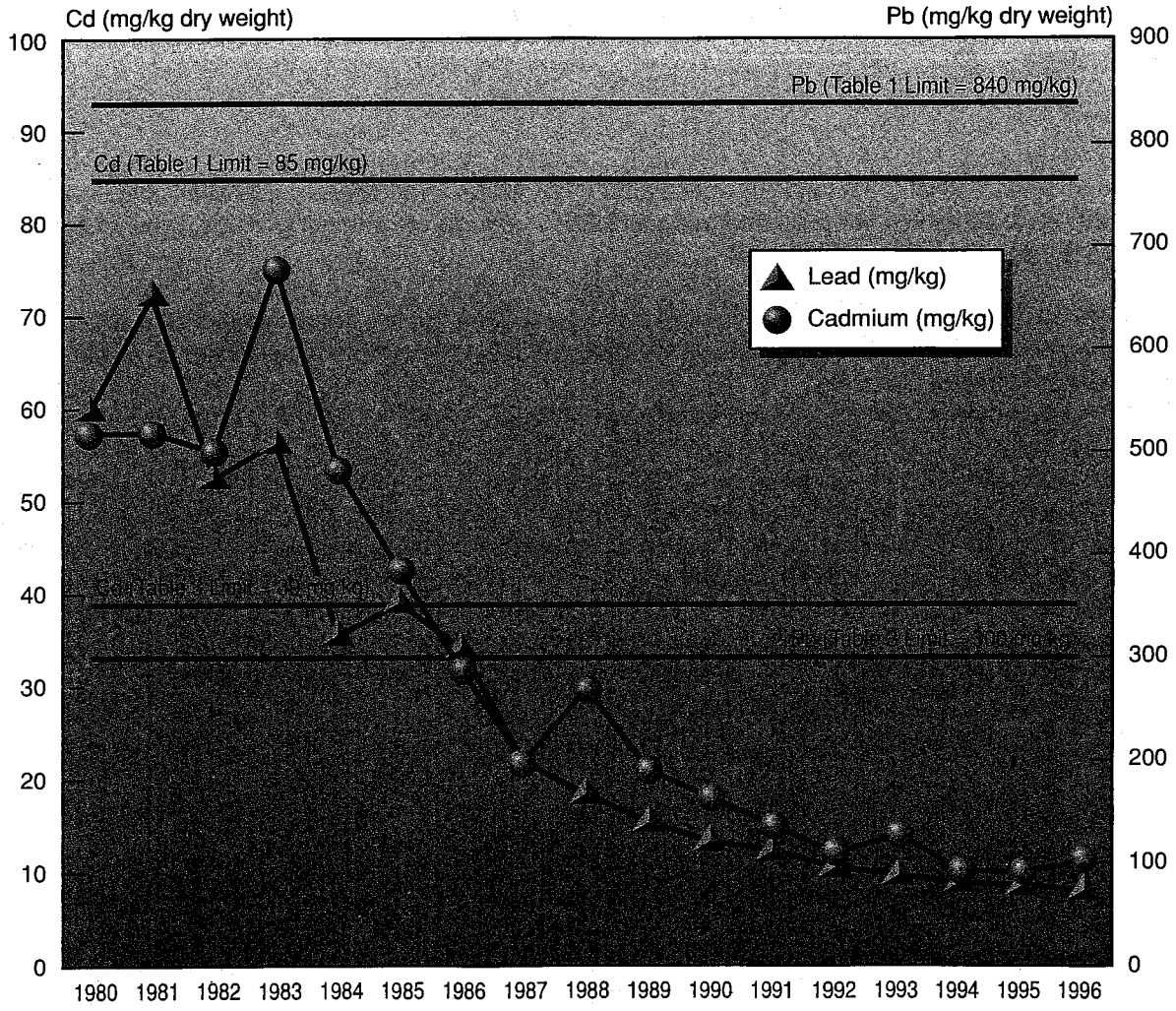
Biosolids are primarily organic solids that are generated by wastewater treatment processes and that can be beneficially recycled. This document uses the term biosolids in reference to the liquid or semi-solid material produced at the treatment plant via traditional treatment such as digestion, lagooning, dewatering, etc., and some non-traditional treatment such as pasteurization. Biosolids recycling can be accomplished in many ways; one way is application to agricultural land to condition the soil (soil amendment) and/or fertilize crops. This is referred to as *land application*. Although biosolids products such as compost and pellets are not covered by this document, many of the management practices offered in this document are applicable to the handing of these materials as well.

Biosolids generated in California have been recycled as a soil amendment on home gardens and agricultural lands since the late 1920s. This recycling effort continued on a modest scale until the early 1970s when new state and federal water quality laws mandated 1) a reduction in pollutants being discharged into sewers and 2) higher levels of wastewater treatment by publicly owned treatment works (POTWs).

Industrial source control programs effectively reduced the contaminant levels in sewer discharges and caused a significant decline in biosolids metal concentrations. Figure 1-1 shows the decline in cadmium and lead concentrations in biosolids from 1980 to 1996. Data are weighted averages from four large California facilities, each of which produces more than 80 dry tons of biosolids per day. This trend is typical for most POTWs which handle industrial discharges.

Figure 1-1

HISTORICAL DECLINE IN CADMIUM AND LEAD CONCENTRATION IN BIOSOLIDS
Weighted Averages from Four Large (>80 dry tons per day) California Facilities



POTWs improved wastewater treatment by upgrading and expanding treatment processes, thus, greatly increasing the quantities of biosolids generated. Subsequently, POTWs and academia further investigated and refined land application and other recycling practices to manage these increased quantities. This, in turn, resulted in a greater scientific understanding of the safety and benefits of biosolids recycling and increased the interest of POTWs in beneficially recycling biosolids.

Currently, land application is the most common of the biosolids recycling practices available for managing biosolids generated at municipal wastewater treatment plants in California. Since the publication of the federal biosolids regulation in 1993, the number of acres of farmland receiving biosolids rapidly increased, and land application gained wider acceptance among both the farming community and regulators for the benefits which biosolids provide to soils. However, even the most ardent supporters of biosolids land application recognize the need for greater regulatory oversight and standard operating practices in order to fully integrate biosolids recycling into acceptable farming practices.

III. REGULATORY STANDARDS

No single California agency regulates biosolids reuse or disposal. The only specific guidance from California agencies for biosolids land application was contained in the 1983 California Department of Health Services (CDHS) *Manual of Good Practice for Landspreading Sewage Sludge.* Currently, other state agencies with possible authority over biosolids management include the State Water Resources Control Board, Regional Water Quality Control Boards (RWQCBs), California Integrated Waste Management Board, Air Resources Board, and California Department of Food and Agriculture (CDFA). Generally, the RWQCBs issue permits for biosolids land application. It should be noted, however, that local governments have become increasingly involved in deciding the extent of land application activities within county boundaries through the enactment of County Ordinances.

The United States Environmental Protection Agency (U.S. EPA) published *Standards for the Use or Disposal of Sewage Sludge,* Title 40 of the Code of Federal Regulation, Part 503 (referred to as Part 503 in this document) in 1993. Part 503 is a comprehensive, risk-based regulation that protects human health and the environment from pollutants of concern that can be present in biosolids. The rule was subjected to an extensive scientific peer review and public notification and hearings prior to adoption. Part 503 consolidates federal regulations concerning biosolids land application. Many local and state agencies now rely on Part 503 for regulatory guidance.

Part 503 is used as a regulatory benchmark in this document. The U.S. EPA prepared numerous reference documents to guide those regulated under Part 503. Both the Part 503 regulation and a list of guidance documents are included in Appendix A. The reader is encouraged to obtain and use these documents in conjunction with this Manual.

The U.S. EPA regulates the final use of biosolids according to the class of pathogen reduction, the degree of vector attraction reduction, and the concentration of regulated pollutants in the biosolids. Because there are numerous combinations of these parameters, the U.S. EPA developed a system for identifying the types of biosolids in relation to the Part 503 regulations. This system is used in this Manual as a convention for clarity in explaining the requirements and is summarized in Table 1-1.

The reader must be aware of additional federal, state, regional, and local requirements and is advised to research and determine how they may apply to a particular project.

IV. GOOD MANAGEMENT PRACTICES

Responsible and informed biosolids management goes beyond regulatory compliance. Indeed, the two major obstacles which confront biosolids recycling efforts in California are public perception and nuisances.

One of the most prevalent public misperceptions is that biosolids are *raw human wastes.* In actuality, biosolids are a valuable resource. Biosolids have been *extensively* treated using physical, chemical, and biological processes to the point where they are suitable for use as soil amendments and fertilizers. Another

Table 1-1

TYPES OF BIOSOLIDS FOR AGRICULTURAL LAND APPLICATION & RELATIONSHIP TO 40 CFR PART 503

Type of Biosolids	Metal Pollutant Limits* 503.13	Pathogen Class	Vector Attraction Reduction Options	Site Restrictions	General Requirements & Management Practices	Track Cumulative Pollutant Loading Rates
Exceptional Quality (EQ) (Bag or Bulk)	Pollutant Conc. Limit Table 3	A	1-8	No	No	No
Pollutant Concentration (PC) (Bulk Only)	Pollutant Conc. Limit Table 3	A	9-10	No	Yes	No
		B	1-10	Yes	Yes	No
Cumulative Pollutant Loading Rate (CPLR) (Bulk Only)	Cumulative Pollutant Loading Rate Table 2	A	1-10	No	Yes	Yes
		B	1-10	Yes	Yes	Yes
Annual Pollutant Loading Rate (APRL) (Bag Only)	Annual Pollutant Loading Rate Table 4	A	1-8	No	Yes	No

* All biosolids applied to agricultural land must meet the Part 503 Table 1 Ceiling Concentration Limits

public misperception is that the chemical makeup of biosolids is unknown; the reality is that biosolids are one of the most studied materials in existence.

Education is key to overcoming public misperceptions about biosolids. However, just as important as education is the need to conduct all activities associated with land application projects without creating a nuisance to the surrounding communities. Odor management may be the most important activity affecting public acceptance; dust management is another. Each of the four primary audience groups plays a role in controlling these impacts. Thus, none of the activities of the four primary audience groups can be conducted in isolation. Rather, all parties must recognize the value of biosolids and work closely together to ensure that each party meets applicable regulations, follows acceptable practices, prevents nuisance conditions from developing, and exercises environmental stewardship. These are accomplished, in part, by instituting voluntary good management practices (GMPs) which add merit to an operation and raise the level of excellence for the industry in general.

The GMPs, as presented in this document, are diverse and range from the Generator's removal of contaminants in biosolids, to an Applier's control of odor at the land application site, to a Grower's use of nutrient management practices. While these GMPs may apply to a broad range of programs, by no means do they apply in each situation. The reader should evaluate site-specific conditions and determine whether implementation is necessary. Additionally, these practices are not exclusive. There are multiple ways to achieve the same goal, and the reader is encouraged to identify and use other practices that result in a higher standard of excellence for the industry.

V. DOCUMENT ORGANIZATION

Four chapters follow, one for each of the primary audience groups. Each chapter is divided into three sections. These sections are 1) discussion of applicability and responsibilities, 2) checklists of Part 503 regulations and GMPs applicable to the chapter, and 3) discussion of each GMP identified to be important to the operation of a sound biosolids management program. There are references to supporting GMPs in parentheses throughout the document that the reader can refer to for additional information or clarification. The document also includes numerous appendices containing, among other items, a glossary and various data/information management forms.

VI. ACKNOWLEDGMENTS

The Manual was developed and written by the CWEA Steering Committee Members listed below with assistance from Charles Egigian Nichols of BioSource Publishing and Ron Crites of Nolte Associates, Inc.

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David Crohn	University of California, Riverside
Robert Gillette	Carollo Engineers
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The Steering Committee received valuable comment from a Peer/Stakeholder Review Group consisting of the following individuals:

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Khaled Bali	UC Cooperative Extension, Imperial County
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Anne Briggs	Eastern Municipal Water District
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Eugene De Michele	Water Environment Federation
Lauren Fondahl	U.S. EPA, Region 9
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Ted James	Kern County Planning Department
Robert Jaques	Monterey Regional Water Pollution Control Agency
Jim Kassel	State Water Resources Control Board
Ken Landau	Central Valley Regional Water Quality Control Board
Ben Lapadula	Honey Bucket Farms/Tule Ranches
Leslie Lundgren	City and County of San Francisco
Peter Machno	King County Department of Natural Resources, Seattle, WA

Pat McCarthy	McCarthy Family Farms/Liberty Transport
Brent McManigal	Pima Gro Systems
Brad Nelson	Lahontan Regional Water Quality Control Board
Linda Novick	Bio Gro Systems
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Encina Wastewater Authority
Kellogg Supply, Inc.
Los Alisos Water District
Monterey Regional Water Pollution Control Agency
Montgomery Watson Americas, Inc.
Sacramento Regional County Sanitation District
Santa Margarita Water District
South East Regional Reclamation Authority
South Bayside System Authority
Susanville Consolidated Sanitary District
Union Sanitary District

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Technical editing was provided by Melissa Blanton.

GENERATOR MANAGEMENT PRACTICES
Chapter Two

I. APPLICABILITY & RESPONSIBILITIES

The Generator of biosolids is defined as the person who prepares or generates biosolids during the treatment of domestic sewage in a treatment works. A Generator includes publicly owned treatment works (POTWs) such as cities, counties, and sanitation districts; private companies that operate wastewater treatment facilities; and water districts and water companies, if these entities are treating domestic sewage and generating biosolids. Where the Generator is also the Transporter, Applier, and/or Grower, the Generator should refer to those respective chapters, as well.

The Generator's primary responsibilities are to:

- Produce biosolids suitable in quality for the intended end use.
- Document and certify the quality of the biosolids.
- Maintain records, prepare annual reports, and deliver information as required.
- Ensure that all applicable federal, state, and local requirements are met by all parties.
- Communicate and coordinate with the Transporter, Applier, and Grower.
- Practice and promote environmental stewardship.

II. CHECKLISTS

A. Regulatory Requirements

Table 2-1 presents a checklist of the Part 503 requirements that are specific to the Generator. Note that *the Generator has ultimate responsibility for meeting the Part 503 requirements regardless of whether contract services are supplied by another party.* The Generator must also comply with any additional federal, state, regional, and local requirements that apply to the Generator's Biosolids Management Program, as discussed in Chapter 1. A full page checklist is reproduced in Appendix B.

B. Good Management Practices

Table 2-2 provides a checklist of Good Management Practices (GMPs) for use by the Generator during the preparation of biosolids for application to agricultural land in California. Each of these GMPs is further explained in Section III following this list. A full page checklist is reproduced in Appendix B.

Table 2-1
PART 503 REGULATORY REQUIREMENTS CHECKLIST
GENERATOR

	CITATION		✓
1.	503.6(e), (f)	Establish that biosolids are not hazardous.	
2.	503.7	Comply with all federal biosolids land application requirements.	
3.	503.8(a), (b)	Collect and analyze representative samples using approved analytical methods.	
4.	503.12(d)	Analyze biosolids for total nitrogen and supply information to the Applier.	
5.	503.12(f), (g)	Prepare and supply notice and necessary information to the Applier and subsequent processors.	
6.	503.12(f), 503.17	Analyze biosolids for the regulated pollutants and provide information to the Applier.	
7.	503.12(l)	Prepare and supply to the permitting authority a notice of interstate transport, if applicable.	
8.	503.14(e)	Prepare and supply labels or instructions if biosolids are sold or given away in a bag or other container for application to land.	
9.	503.15(a), 503.32	Meet Class A or Class B pathogen reduction requirements.	
10.	503.15(c), 503.33	Meet vector attraction reduction requirements, if applicable.	
11.	503.16	Monitor regulated parameters at a frequency consistent with Table 1 of 503.16.	
12.	503.17(a)	Maintain records of pollutant concentrations, pathogen reduction, vector attraction reduction, and certification of achieving Part 503 compliance for five years.	
13.	503.18	Prepare and supply annual reports to the permitting authority.	

Table 2-2
GOOD MANAGEMENT PRACTICES CHECKLIST
GENERATOR

	PROGRAM MANAGEMENT	✓
1.	Develop a Biosolids Management Plan.	
2.	Properly train employees to implement Biosolids Management Plan and related programs.	
3.	Routinely communicate with appropriate regulatory authorities.	
4.	Hire only qualified Transporters and Appliers.	
5.	Develop a Biosolids Fact Sheet.	
6.	Use a contract to define relationship with Transporter/Applier/Grower.	
7.	Inspect the transportation routes and application site monthly.	
8.	Keep complete records of all application activities.	
9.	Verify compliance of Transporter, Applier and Grower with regulatory requirements and GMP check list.	
10.	Verify compliance with crop harvesting site restrictions.	
	OPERATIONS	✓
11.	Minimize the amount of inert and foreign material in biosolids that are land applied.	
12.	Adequately stabilize the biosolids to minimize odors.	
13.	Produce biosolids of sufficient moisture content to minimize offsite dust generation.	
14.	Minimize the concentrations of pollutants in biosolids.	
15.	Notify Applier of any release of biosolids of unsuitable quality.	

III. GOOD MANAGEMENT PRACTICES DISCUSSION

This section provides an explanation of the management practices listed in Table 2-2. For each management practice, the purpose of the practice is discussed along with guidance for implementing the practice. Supplemental materials referenced in the text are included in the appendices.

For convenience, the discussions below assume that the Generator contracts with an Applier who provides Transporter, Applier, and Grower activities either directly or through a subcontract. Obviously, this is not always the case. Therefore, the reader is advised to take the necessary interpretive liberties with the text in this chapter such that the information applies to the reader's particular situation.

1. Develop a Biosolids Management Plan.

Purpose: A Biosolids Management Plan (Plan) provides a framework for managing biosolids in a manner consistent with predetermined goals and objectives of the Generator. It identifies feasible end use options and the many variables that affect the Generator's ability to effectively manage its biosolids. Additionally, the planning component allows foreseeable problems or issues to be addressed and contingencies prepared. Good contingency planning provides reliability, flexibility, and pre-planned alternatives for emergency situations. The Plan is comprehensive and discusses all aspects of biosolids management from the source control program in place to protect biosolids quality, to operational considerations/constraints, to contract management (with Transporters, Appliers, Growers), to contingencies. Many of the components which comprise the Plan are also discussed in the GMPs below and in the following chapters.

Implementation: The land application component of the Plan should address biosolids quality with respect to regulated constituents and nutrients, pathogen reduction, vector attraction reduction, and physical characteristics (e.g. moisture/dryness, odor, amount of inerts, etc.). Contingency options should be identified and implementation discussed. Evaluation of facility variables will include, at a minimum, storage capacity, vehicle loading capabilities, and future growth demands. Storage needs should identify whether storage will be provided by the Generator or Applier and be evaluated for a variety of weather conditions (normal versus atypical rainy seasons). Additional considerations can include the use of contract services versus Generator run operations, need for flexibility/reliability, advantage of diversification, cost, value of recycling versus disposal, local versus out-of-area politics, all-weather capabilities, etc.

Maintaining biosolids quality and certifying biosolids quality to the Applier is critical in land application projects. Thus, the Plan should identify what proactive steps are necessary to protect biosolids quality. Areas for discussion include the following:

- Biosolids sampling and analysis.
- Operational parameters monitoring.
- Biosolids quality certification.
- Recordkeeping and reporting.
- Contingency planning.

Biosolids Sampling and Analysis - Accurate biosolids characterization involves identifying a representative sample location, following acceptable collection procedures (U.S. EPA, 1988), using acceptable analytical methodology (U.S. EPA, 1997 a, b), and sampling at an appropriate frequency. In addition to regulated parameters, biosolids should also be analyzed for nutrients to ensure proper agronomic rate calculations.

Operational Parameters Monitoring - Biosolids quality is also determined by monitoring the performance of solids processing. The operational parameters should be monitored at a frequency that ensures

consistent process performance (e.g. anaerobic digestion detention time and temperature for determining Class B pathogen reduction should comply with PSRP criteria). The regulatory required monitoring frequency is not necessarily the appropriate frequency to ensure performance compliance for certain processes.[1] Also, facilities with multiple digesters should evaluate the need for determining the performance of individual units in lieu of the performance of the entire digestion system when establishing PSRP status and determining compliance with Part 503.

Recordkeeping and Reporting - A well organized data management program is paramount to the interpretation of the information obtained through sample analysis and process monitoring. A detailed discussion of data management is provided in Generator GMP-8.

Biosolids Quality Certification - Frequent documentation of biosolids quality serves to confirm the adequacy of source control and in-plant process performance and minimizes the potential to land apply unsuitable biosolids. This documentation can be accomplished through a monthly certification to the Applier using the modified U.S. EPA form included in Appendix C or similar form created by the Generator. At a minimum, the certifications should include information on concentrations of regulated constituents and nutrients, pathogen reduction (e.g. Class A or Class B bacteria densities and/or process parameters), and vector attraction reduction. Copies of certifications should be kept on file with other biosolids records to demonstrate regulatory compliance.

Contingency Planning - The contingency part of the Plan should focus on what to do when something goes wrong. Problems may occur in the operational processes at the treatment plant, during transport, at the land application site, or as a result of natural circumstances such as weather or a natural disaster. Good planning will allow these problems to be overcome without major disruption of the overall biosolids management program.

The primary aspect of the Generator's contingency planning should focus on treatment plant processes and subsequent biosolids quality (Generator GMP-15). However, it also would be prudent for the Generator to consider contingency options in the event that a contract provider is impacted since there are many circumstances that can disrupt or interfere with a contractor's operation. For example, a Transporter may be faced with a highway closures; an Applier, with inaccessible fields due to excessive rains.

Contingency planning should involve all parties and evaluate who will be best suited to manage the biosolids in a backup situation. For example, in the event that an Applier's fields are inaccessible due to excessive rains, there are two possible options: 1) the Generator may require the Applier to have access to a backup land application or disposal site where the Applier would manage the biosolids without an interruption in service or 2) the Generator may take responsibility for managing the biosolids until the primary application site becomes available or an alternate site is agreed upon. Some examples of emergency situations and possible contingencies for each are presented below.

2. Properly train employees to implement Biosolids Management Plan and related programs.

Purpose: Training of employees with respect to their implementation responsibilities is necessary in order for the Biosolids Management Plan to be effective. Training focuses on regulatory and GMP compliance and overall environmental stewardship by providing employees with information on how to responsibly manage biosolids to prevent adverse impacts.

[1]It is recommended that the monitoring of digestion time and temperature and volatile solids destruction should be performed daily. It is understood that very small facilities that are not staffed on a 7-day basis would perform this monitoring on a less frequent basis.

Emergency Situation:	Contingency:
• A treatment plant experiences an operational upset or unauthorized industrial discharge that results in biosolids quality not acceptable for land application (e.g. inadequate pathogen or vector attraction reduction, high concentrations of metals, inerts, plastics, etc.).	• Landfill/incineration backup. • Other backup option that provides additional processing prior to reuse.
• A freeway(s) is closed after an earthquake, preventing trucks transporting the biosolids from reaching their destination (primary land application site).	• Adequate on-site storage. • A backup site located in a different direction which may be more accessible. • Alternate route to primary site.
• Heavy rainfall at the primary land application site results in soils that will not support application equipment.	• Adequate on-site storage. • A land application backup site located in a different geographical location that is not experiencing heavy rainfall. • Landfill/incineration backup.

Implementation: Employee(s) responsible for any portion of the biosolids management program should be knowledgeable in at least that portion of the management program. For example, treatment plant employees responsible for digester operation must know the proper detention time and temperature required to reduce pathogens. If the trend of these parameters indicates a potential problem, the responsible person should take appropriate action prior to the development of an actual problem. Other treatment plant employee(s) should be aware that the biosolids going to land application should not contain an inordinate amount of plastics or be malodorous. In the case of excessive plastics, the biosolids may need to be directed to a landfill or to rescreening; in the case of excessive odor, the biosolids may require immediate incorporation at the application site after notification of the Applier. In either case, the cause of the problem should be corrected as soon as possible. Employee(s) responsible for data evaluation should have a thorough understanding of regulated pollutants and concentrations of nutrients, be able to recognize and investigate the validity of atypical values, and alert appropriate personnel if a problem occurs.

Some of the general areas in which employee(s) should receive training include:

- Regulations
- Solids Process Operations
- Biosolids Quality
- Land Application Operations
- Recordkeeping and Reporting
- Contract Management
- Public Outreach

A specified individual should have the responsibility to keep current with regulatory and other issues/information as they relate to biosolids land application. This individual can oversee the effectiveness of the biosolids program, be responsible for providing appropriate information and updates to all other employees involved in biosolids production/management, and interact/coordinate with the Transporter(s), Applier(s) and Grower(s). The employee responsible for the overall program should attend at least 16 hours

of annual training to be current with regulations and management practices. There are many opportunities for training, including: CWEA's Biosolids Land Application Training Course, CWEA's Annual Biosolids Conference held alternately in northern and southern California, or the Water Environment Federation's (WEF) Annual Biosolids Specialty Conference held at various locations around the nation. Additionally, CWEA's Regional Training Conference, held annually in northern and southern California, CWEA's Annual Member Association Conference, and WEF's Annual Conference can be worthwhile when biosolids sessions are offered. These conferences/courses may be appropriate for other employees as well, and therefore the Generator is encouraged to send as many employees as possible. It may also be beneficial to attend some of the agricultural nutrient management courses such as those offered through the University of California and CDFA.

The materials obtained at the various courses/conferences and other program management information should be accessible to other staff in the organization. One suggestion would be to maintain a library of permits, contracts, Part 503 guidance materials, and other documents in a central location where the information can be easily accessed by staff. For large agencies, libraries may need to be set up in multiple locations.

Additionally, Generators should take advantage of the many California organizations with committees that stay current with biosolids developments. Apart from CWEA, these include California Association of Sewerage Agencies, Tri-TAC, Southern California Alliance of POTWs, and Biosolids Recyclers of Southern California. On a national level, the WEF produces excellent fact sheets and national issues updates and convenes a biosolids committee.

3. Routinely communicate with appropriate regulatory authorities.

Purpose: It is to the Generator's advantage to develop a good working relationship with those regulators who oversee projects in which the Generator's biosolids are managed. This informal one-on-one relationship usually results in the exchange of invaluable information. For example, when biosolids are being contract-managed by an independent Applier, the regulator may have dealt solely with the Applier and, subsequently, have a limited understanding of the Generator's facility, management program, and commitment to excellence. Alternatively, the Generator may not be aware of any special concerns that the regulator may have about a project. Communication also provides opportunities for early notification of developing problems such as non-compliance or community complaints and gives the regulator a contact to call to resolve issues concerning a project.

Implementation: It is recommended that the Generator develop a dialogue with the regulators who oversee their biosolids land application projects. The following basic steps can be followed:

(1) Telephone, introduce yourself, and inform your contact of the intention of the phone call.

(2) Inquire about the regulator's overall impression of the subject project and whether there are any outstanding tasks or other problems.

(3) Request telephone notification regarding any problems at the land application site, and ask to be included on a distribution list for any communications sent regarding properties where your biosolids are being land applied.

Conduct quarterly phone calls to stay informed about the latest developments at the land application site. It is recommended that this routine contact be maintained for the life of the project.

4. Hire only qualified Transporters and Appliers.

Purpose: Contractors hired to provide biosolids management services should possess qualifications which allow them to conduct their business in a professional manner while protecting public health and the environment and avoiding nuisances. Simply stated, contractors who know what they are doing are less likely to run into problems. Therefore, cost should not be the sole basis for awarding a contract.

Implementation: Qualifications do not necessarily include prior experience even though this is an ideal means for evaluation. Qualifications that are critical for a Transporter to possess include (but are not limited to):

- A thorough understanding of the regulations and laws governing the transportation of biosolids.
- Good company driving record.
- Ability to implement an efficient, easily-understood recordkeeping system.
- Recognition of the importance of public relations.
- A comprehensive Transportation Management Plan.

Qualifications that are critical for an Applier to possess include (but are not limited to):

- A thorough understanding of the regulations and laws governing the land application of biosolids.
- Knowledge regarding application rate calculations and tracking of metals loading rates.
- Understanding of the agricultural aspects associated with land application.
- Ability to implement efficient, easily-understood recordkeeping and reporting systems.
- Recognition of the importance of public relations.
- A comprehensive Site Management Plan.
- Good regulatory relationship and compliance record.
- Knowledgeable staff.
- Inventory of well located sites and established criteria for selecting the same.

Generators should check references provided by contractors and conduct interviews to verify the contractor's qualifications. The contractor should have established a good track record and be well respected in previous employment ventures. All documents submitted by contractors should be carefully reviewed for completeness and accuracy. Management Plans should demonstrate the contractor's competency and identify whether biosolids from various treatment plants will be mixed together, mixed with other alternative soil amendments, or applied with other materials to the same sites. In addition, the Generator should verify that permits are current and any required CEQA documentation is valid, confirm insurance is adequate, inspect transportation fleet/application equipment, tour land application site(s), and contact subject regulatory authorities prior to negotiating a contract.

5. Develop a Biosolids Fact Sheet.

Purpose: The land application of biosolids to agricultural lands has resulted in the transportation and use of biosolids in new geographical areas. This results in more contact with a material that the public is unaccustomed to and possibly fears. Many people are apprehensive about the use of biosolids from a lack of understanding of the benefits of biosolids reuse. Their apprehensiveness may also be influenced by misinformation spread by those opposed to biosolids reuse. This fear is overcome through education.

Obviously, Generators cannot speak with every single person that might come into contact with a load of biosolids in order to give them *the facts*. However, what the Generator can do is produce a Biosolids Fact Sheet for use by the Generator, Transporter, Applier, and Grower that contains enough information to relieve immediate concerns and provides contacts for further information.

Implementation: A Fact Sheet containing both general biosolids information (i.e., non-hazardous, regulated by Part 503 standards, etc.) and facility-specific information (i.e., treatment processes, characteristics, etc.) should be developed and provided to the Transporter, Applier, and Grower. An example Fact Sheet, which can be modified to address each Generator's circumstances, is provided in Appendix D. The Fact Sheet should be updated as often as necessary.

6. Use a contract to define relationship with Transporter/Applier/Grower.

Purpose: A well thought out, detailed contract serves as a basis for assigning the responsibilities of the appropriate parties involved in the management of the biosolids. The contract will ensure that everyone understands and fulfills their responsibilities and that nothing impacting biosolids management is inadvertently overlooked. Typically, the contract is between the Generator and the Applier (who may also perform the Transporter and/or Grower activities or who subcontracts these activities). The information below can be modified to fit particular circumstances if multiple contracts exist.

Implementation: A standard contract typically details the basic requirements of a project, including the project description (management by land application, site location, biosolids quantity), cost, billing, term, insurance requirements, indemnity, termination basis, and other considerations. Some additional contractual items which the Generator may wish to require of the Applier are listed below. This list is by no means comprehensive, and the Generator is encouraged to add all others that will add to the benefit of the contract.

Regulatory compliance - Compliance with all current and future regulations is paramount to the continued success of any land application project. Both the Generator and Applier should be required to demonstrate compliance through the submittal of data and certifications (Generator GMP-1, Generator GMP- 8, Applier GMP-5). The contract should specify the means by which each party will notify the other of non-compliance, including time requirements for notification of the various types of non-compliance incidents and the procedure for contacting the permitting authorities.

Use of GMPs - Good management practices set a standard within the land application industry. The goal of using GMPs is to ensure that land application is conducted in a manner which is protective of public health and the environment and without nuisance. Transporter's/Applier's Management Plans should be consistent with all GMPs applicable to the project. The contract should identify the specific GMPs which the Transporter, Applier, and Grower should implement. A periodic audit and/or inspection can ensure that the GMPs are being followed.

Reporting Requirements - The routine transfer of Applier operations information is necessary in order for the Generator to keep current with the activities at the land application site. A detailed discussion of Operations Status Reports is provided in Applier GMP-5. This reporting also includes notification of any complaints or nuisances.

Information Submittals - Contracts should specify information required to be submitted to and approved by the Generator prior to the startup of operations. Examples include the Site Management Plan (Applier GMP-3), all permits and environmental documentation, and the Transportation Management Plan (Transporter GMP-1), if these were not submitted and approved prior to contract award. The Generator should review all plans to ensure that they are comprehensive and realistic and periodically verify that all submittals are up to date and that the Transporter's and Applier's staffs are sufficiently trained in their respective areas.

Transportation Route Selection and Approval - Transportation routes should generally be selected to use main thoroughfares and safe routes and to avoid residential areas. It is prudent of the Generator to require submittal of these routes for review and approval prior to startup.

Temporary Suspension Capabilities - Generators may greatly benefit from the ability to temporarily suspend a contract when unacceptable problems develop (problems can be related to both biosolids quality or contractor performance) until those problems are corrected. Obviously, in order to facilitate a suspension, the Generator must have an alternative means of managing the biosolids. While this may be burdensome, the continuation of a problematic project may be far more damaging in the long run.

Operations Considerations - The Generator may wish to include certain treatment plant facility information/constraints in a contract. These include loading directions/windows, traffic circulation patterns, parking restrictions, location of restroom facilities, etc.

7. Inspect the transportation routes and application site monthly.

Purpose: Transportation routes are generally selected to use main thoroughfares and safe routes and to avoid residential areas. They are developed to provide the most direct means of accessing the land application site while minimizing public contact and any related adverse impacts. It is in the best interest of the Generator to require submittal of proposed primary and alternate routes for approval prior to commencement of a contract (Transporter GMP-1).

Implementation: Route inspections may be accomplished by following a random vehicle leaving the plant and verifying that the vehicle is following approved routes. Additionally, the inspection should evaluate driving skills (attention to rules of the road, driver courtesy, etc.) and note any stops made. For example, parking a loaded biosolids truck in a congested restaurant parking lot at lunch time on a hot day may generate unwanted public attention.

Inspection of the land application site verifies that biosolids are being managed in accordance with regulations, any additional local requirements, and contractual requirements. It also provides an opportunity for the inspection of operating procedures and transport vehicles and can document responsible management practices through the use of GMPs.

Development and use of a standard inspection sheet will allow consistent documentation of issues or practices that are important in the management of biosolids. Appendix E contains an example inspection form that can be modified to contain further information specific to each project. There are advantages to both announced and unannounced inspections, and both are recommended. Announced inspections allow the inspector to make appointments to speak with certain operations personnel who may otherwise not be on site at the same time as the inspector. Unannounced inspections provide an opportunity to verify that site conditions are maintained and operations are conducted in an acceptable manner at all times.

It is recommended that Generators conduct monthly inspections of the application sites where biosolids are managed.[2] In cases where inspections present difficulties because of limited staff, cost, or other factors, a consultant can be used, or multiple Generators could share inspection activities if they use the same site or different sites in the same general area. Obviously, Generators which share inspections must agree on the inspection protocol prior to the inspections.

[2] There may be exceptions to this recommended frequency. Less frequent inspections may be appropriate for small facilities, or more frequent inspections may be needed for new contracts or for operations experiencing problems.

8. Keep complete records of all application activities.

Purpose: The Generator needs to be aware of the status of the biosolids management program at all times. This includes maintaining information on not only in-plant processes and biosolids quality as discussed in Generator GMP-1, but also the application site activities. The Generator is ultimately responsible for compliance with Part 503 regulations even when contract management is utilized. For this reason, the Generator must develop the ability to implement efficient, easily-understood recordkeeping and reporting systems and require the same of the Applier.

Implementation: Recordkeeping for land application activities start at the treatment plant with biosolids characterization. The data which characterize the biosolids quantity and quality should be easily accessible and summarized on a routine basis for clear understanding. Records should contain sufficient information for the reader to immediately know if the data are on a wet or a dry weight basis and whether analytical results are in compliance with regulatory standards. Process performance should also be routinely reviewed for compliance and summarized for recordkeeping. It is recommended that the Generator summarize the following information on a monthly basis and provide this information to the Applier. Appendix C contains a useful form for this purpose.

- Pollutant concentrations and notice of any pollutant exceeding Table 3 limits.
- Nitrogen concentrations (ammonium, organic, nitrate, and nitrite).
- Process performance information if used for pathogen and/or vector attraction reduction compliance (e.g. digester time and temperature, % volatile solids destruction).
- Microbiological monitoring results if used for pathogen reduction.
- Compliance certifications.

For small facilities where it can be demonstrated through historical pollutant concentration data that the biosolids quality does not fluctuate significantly, it may be appropriate to analyze the biosolids on a less frequent basis. However, this lessened frequency is not recommended for process performance data collection (Generator GMP-1).

Often, the application sites to which the biosolids are being applied are great distances from the treatment plant. This results in limited oversight by the Generator and, therefore, the need to perform periodic inspections (Generator GMP-7). A way to keep current with the land application activities without being in the field on a daily basis is to require the Applier to submit a Site Management Plan prior to startup and Operations Status Reports which include Field Change Notifications, Monthly Activity Reports, Field Summary Reports, Grower Certifications, and Annual Reports on a frequent on-going basis (Applier GMP -5).

Appliers must carefully track the amount of biosolids applied in order to monitor nitrogen, and possibly metal, additions to the soil. Submission of the Operations Status Reports allows the Generator to verify that the Applier is applying biosolids at a rate which benefits crops and protects the environment and that the project is in compliance with regulations and without nuisance.

Records of land application activities should be managed in a manner that allows easy identification and understanding of data. An option to accomplish this is to designate a separate file for each individual field on which biosolids have been applied and maintain in the file both detailed information (i.e., Generator data and Certifications and Operations Status Reports) and an at-a-glance compliance summary for each application. A Field Compliance Summary form which the Generator can use for this purpose is provided in Appendix C.

9. Verify compliance of Transporter, Applier and Grower with regulatory requirements and GMP checklist.

Purpose: Although the Generator may have a biosolids contract which assigns project management responsibility to a contractor, the Generator is ultimately responsible for regulatory compliance of that project. Additionally, it is in the Generator's best interests to go beyond legal requirements and ensure that there are no impacts to surrounding communities either during transportation or application. This is accomplished by requiring the use of appropriate GMPs in all aspects of the projects.

Implementation: Regulatory compliance and the implementation of GMPs can be verified by using the checklists provided in Section II of Chapters 2 - 5 and reproduced in Appendix B. Verifications can be conducted periodically during inspections and report reviews.

10. Verify compliance with crop harvesting site restrictions.

Purpose: The Generator must ensure that the biosolids are managed in a manner which is in compliance with applicable regulations. Although the intent of this document is not to provide guidance on the implementation of Part 503 (the U.S. EPA has published multiple guidance documents which are listed in Appendix A), several areas of the rule are vague and warrant further development as GMPs. One of these areas is compliance with the land application site restrictions for crop harvesting.

Implementation: Certain crops are restricted from being harvested for a full 38 months following the application of Class B biosolids. The failure to monitor through the 38 month period is a real possibility, especially at sites where biosolids are no longer being applied. Therefore, the Generator is encouraged to require the Applier to submit quarterly certifications of compliance, signed by the Grower, for each land applied field for the full 38 months following each application (Applier GMP-5, Grower GMP-5). An certification example is provided in Appendix F.

11. Minimize the amount of inert and foreign material in biosolids that are land applied.

Purpose: Inert and foreign material do not add any value to the soils where biosolids are applied. Furthermore, these materials may interfere with agricultural equipment or get caught up with harvested crops, thus decreasing the value of the crops.

Implementation: Treatment plant processes should be assessed for adequate screening at the headworks, or at another point prior to application to soils. If there is not sufficient processing to prevent inert and foreign material from ending up in biosolids, two options are available, adding additional treatment or utilizing a disposal option (Generator GMP-1).

Employees responsible for biosolids production or loading should be trained to identify pass through of inert material in order that subsequent biosolids are not released for land application. Plant processes such as digester cleanings may increase the amount of inert or foreign material ending up in biosolids. Biosolids destined for agricultural land application sites should not be mixed with digester cleanings, screenings, or other wastewater solids. Disposal arrangements should be made for these non-biosolids materials.

12. Adequately stabilize the biosolids to minimize odors.

Purpose: Biosolids which are not adequately stabilized can continue to degrade, releasing odors during transportation and application. Additionally, odors can result from the types of chemicals used in the

treatment processes and from particular industries which add obnoxious, persistent, odor causing compounds to the incoming wastewater. Odors attract flies and other vectors and are offensive to the public. In fact, odors are probably the primary problem associated with land application projects.

Implementation: The most obvious solution to minimizing odors in the biosolids is to provide adequate stabilization. Detention time in digesters is a key element for stabilization. In cases where the treatment plant does not have sufficient detention time to fully stabilize biosolids, the addition of more capacity or add- on stabilization processes should be considered. Other options include selecting land application sites which are remote and where odors will not create a public nuisance, utilizing further treatment of the biosolids prior to land application such as composting or lime stabilization, or using landfill disposal or incineration.

Assessment of stability at the point of generation either by certain test methods or by evaluating process performance is another option for minimizing odors. For example, anaerobically digested biosolids can be monitored for volatile solids reduction and digester gas production at 35 degrees centigrade (Switzenbaum, 1997). For more information on stabilizing biosolids, see Walker, 1994.

13. Produce biosolids of sufficient moisture content to minimize offsite dust generation.

Purpose: Very dry biosolids (less than 50% moisture) can create dust during land application. This dust can create nuisance conditions at the application site and surrounding areas depending on weather conditions. Dust also draws attention to application activities and is often associated with a pollutant transport perception, regardless of biosolids quality.

Implementation: Typically, very dry biosolids are produced after air drying or storage for prolonged periods of time. In these situations, the Generator might evaluate the feasibility of removing the biosolids from storage prior to achieving this extreme dryness or adding moisture prior to release from the facility to keep the biosolids from becoming readily wind borne upon application. Where these are not options, the application of biosolids to land during windy conditions should be avoided. This can be accomplished by including a restriction in the Applier's contract. The tarping of trucks transporting very dry biosolids is especially important for the same reasons stated.

14. Minimize the concentrations of pollutants in biosolids.

Purpose: The concentration of pollutants in biosolids can restrict the amount of biosolids that can be applied to land. Generators typically have an easier time managing higher quality biosolids (Part 503 Table 3 versus Table 1 pollutant concentrations) because of *perceptions*. The effective implementation of source control and/or pretreatment programs can reduce pollutant concentrations in biosolids.

Implementation: The person responsible for source control should become familiar with the requirements for land application of biosolids. Discharges to wastewater treatment plants should be surveyed to identify and control pollutant sources. Local pretreatment limits should be reviewed to make sure that they are sufficient to protect the quality of the biosolids. Pollutants of concern should be identified, and managers of pretreatment programs should work with industries discharging those pollutants to minimize the discharges which could hinder the beneficial use of biosolids. Best Available Technologies for pretreatment of wastes should be implemented by all industrial discharges. Generators are encouraged to implement pollutant prevention programs that eliminate contaminants in the biosolids to the maximum possible degree.

15. Notify Applier of any release of biosolids of unsuitable quality.

Purpose: Biosolids are treated to a certain physical, chemical, and microbiological quality in order to be suitable for land application. Some of the quality criteria such as pollutant concentrations, pathogen reduction, and vector attraction reduction are regulatory mandates; other quality aspects of the biosolids such as degree of odor, dryness, and inerts are for nuisance control. It is important for a Biosolids Management Plan to clearly define the characteristics of biosolids suitable for land application (Generator GMP-1).

Implementation: In the event that biosolids unsuitable for land application are inadvertently released from the treatment plant, two actions must be taken to address the situation.

(1) Do not release any additional biosolids from the treatment plant for land application until the problem causing the degradation of quality is corrected and the quality is again acceptable.

(2) Notify the Applier by telephone, immediately upon discovery of the problem, and share any possible corrective actions.

Where vector attraction reduction has not been achieved by the Generator, the Applier must be notified to incorporate the biosolids within six hours of application. In the event that the biosolids cannot legally be land applied because Part 503 Table 1 concentration limits or Class B pathogens requirements have not been met, immediate notification of the Applier may allow the biosolids to be re-routed to a contingency location such as a landfill. In the event that the biosolids have already been land applied, the appropriate regulators should be contacted and consulted on how to further proceed. In non-regulatory related cases, such as where biosolids may create nuisance, adjustments to operational processes may suffice (e.g., immediate incorporation of extremely odorous biosolids).

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TRANSPORTER MANAGEMENT PRACTICES
Chapter Three

I. APPLICABILITY & RESPONSIBILITIES

The Transporter is defined as the person who transports biosolids from the point of generation to the point of use at the land application site. The Transporter includes all persons and companies in the business of transporting biosolids and those Generators, Appliers, and Growers who directly operate and/or manage the vehicles in which biosolids are transported for reuse. The transportation of biosolids from the Generator's facility to the land application site is typically accomplished using trucks with capacities of about 20 to 30 wet tons. For the purpose of Chapter 3, transportation of biosolids encompasses loading, hauling, and unloading. Other means of transportation, such as pipeline or rail, are seldom used and will not be discussed in this document.

The Transporter's primary responsibilities are to:

- Operate clean, well maintained, and licensed vehicles for the transportation of biosolids.
- Employ and train qualified drivers.
- Operate vehicles safely and in compliance with all legal requirements.
- Transport biosolids without creating a nuisance or harming human health or the environment.
- Maintain good records and submit information, as required.
- Coordinate activities with the Generator, Applier, and Grower.

II. CHECKLISTS

A. Regulatory Requirements

The U.S. EPA has not developed any specific regulatory requirements for the transportation of biosolids. Rather, the Transporter must comply with applicable state and federal regulations that apply to general transportation/highway practices. These include the requirements of the California Vehicle Code and the Federal Motor Carrier Safety Regulations, which are part of the Federal Highway Administration- Department of Transportation regulations. The Transporter may also be required to meet requirements of the Interstate Commerce Commission as a regulated motor carrier and the California Public Utilities Commission as a highway contract carrier. The reader is referred to the regulations of each of these entities for specific information on applicability and requirements.

B. Good Management Practices

Table 3-1 provides a checklist of GMPs for use by the Transporter during the transportation of biosolids to agricultural land application sites in California. The GMPs are discussed in Section III following the table. A full page checklist is reproduced in Appendix B.

Table 3-1
GOOD MANAGEMENT PRACTICES CHECKLIST
TRANSPORTER

	PROGRAM MANAGEMENT	
1.	Prepare a written Transportation Management Plan.	
2.	Hire and train qualified drivers.	
3.	Maintain vehicles and trailers in a safe operating condition.	
	OPERATIONS	
4.	Operate vehicle safely and drive courteously at all times.	
5.	Follow proper loading, tarping, and sealing procedures.	
6.	Minimize nuisance potential during transport.	
7.	Keep ignition sources away from/do not physically enter tarped trailer loads of biosolids.	
8.	Carry proper biosolids documentation at all times.	
9.	Clean biosolids and mud from vehicle before entering public roads.	
10.	Unload biosolids only in designated areas at land application sites.	
11.	Practice appropriate health safeguards	

III. GOOD MANAGEMENT PRACTICES DISCUSSION

This section provides an explanation of the management practices listed in Table 3-1. For each management practice, the purpose of the practice is discussed along with guidance for implementing the practice. Supplemental materials referenced in the text are included in the appendices.

1. Prepare a written Transportation Management Plan.

Purpose: A formal Transportation Management Plan (Plan) is crucial in order to safely and efficiently transport biosolids on public roads and to respond to emergency situations. The transport component of the Plan depends on the employment of qualified and knowledgeable drivers (Transporter GMP-2), the use of appropriate equipment (Transporter GMP-3), and the selection of primary and alternate routes.

The contingency component of the Plan addresses what to do in an emergency. Emergencies can include accidents, roadway spills, vehicular breakdowns, road closures, and other events resulting under normal circumstances or as a result of acts of nature. Safety should be the primary consideration in all emergency situations. After attending to all safety issues and cooperating with all law enforcement and emergency response personnel, the goal is to transport the biosolids to their final destination in order to avoid nuisance conditions (odors, vectors, etc.), especially in warmer weather.

Implementation: The Transporter should determine both primary and alternate routes before the first load of biosolids is transported from the Generator's facility. Routes should be selected to minimize impact on local roadways and communities. It should be remembered during the route planning phase that the most direct and quickest route may not always be the route having the least impacts on the public. Times of travel should be selected to avoid heavy traffic congestion by coordinating with the Generator and scheduling, when possible, hauling times which avoid peak rush hour traffic. This will assist in minimizing odor nuisances to the communities through which the transport vehicles are passing and increase the chances of having a safe trip. Additionally, routes subject to frequent closures due to inclement weather should be avoided. The

Transporter should know, at all times, the roads on which the biosolids are being transported and the proper steps to take in a situation which necessitates the use of alternate routes. One of these steps is for the driver to notify the dispatch office of the change.

The contingency component of the Plan should designate response procedures for the various emergencies/situations and communication procedures. Additionally, the Plan should designate contacts who are notified for each type of emergency/situation and provide their current telephone and pager numbers. Depending on the severity of the situation, these contacts may include law enforcement and /or emergency response personnel; in emergency cases it should include the Generator and Applier. The Plan should be sufficiently detailed such that there is no question as to the steps that should be taken in any emergency, and it should be updated on a routine basis. Coordination between the driver and the dispatch office is important to the successful integration of the Plan in order to get a quick response to the emergency situation. A current copy of the completed Plan should be maintained in each vehicle, and all drivers should be proficient in the Plan's details; the Generator and Applier should also be provided with a copy.

The Transporter must create and be proficient in response and communication procedures in the event of an accident and/or spill of any amount of biosolids onto a roadway. In all situations, the driver must cooperate with law enforcement and emergency response personnel. The driver should be skilled in clean-up procedures and knowledgeable about biosolids characteristics when a spill of biosolids is involved.

In most cases, biosolids spilled onto a roadway pose a potential hazard because they can create wet, slick surfaces for motor vehicles and/or can obstruct traffic flow. If biosolids remain on the surface for a sufficient time, they may become a source of potential contamination to nearby storm drains, waterways, or ground water. Any spilled biosolids should be returned to the trailer from which they spilled or loaded into another appropriate transport vehicle and taken to an approved reuse or disposal site. It may facilitate cleanup to sand the road after the material has been loaded. It is not recommended that water be used in the clean up because this may result in contaminants being washed into waterways. Some basic elements of an effective spill response plan are included in Appendix G. The Transporter is encouraged to modify this plan to fit specific needs.

Additionally, the Transporter should develop contingencies in the event of vehicular breakdowns and road closures which require the use of alternate routes. The Transporter should attend to vehicular breakdowns as soon as possible. Backup tractors should be available to haul the biosolids to their destination when the malfunctioning tractor cannot be repaired on the road.

2. Hire and train qualified drivers.

Purpose: The use of qualified drivers is essential for the transportation of biosolids in a safe manner, and professionalism is necessary to maintain good public perception. Drivers of vehicles carrying biosolids must be provided with training to understand the physical/chemical/biological properties of the material being transported, learn and become proficient in corrective actions in the event of an accident and/or spill, and minimize response time in emergencies.

Implementation: Basic driver qualifications are not biosolids-specific but, specific to motor vehicle operation with respect to having passed a written test, driving test, physical exam, and drug screening and other tests. It is prudent to examine and verify a driver's accident history, driving record, and prior employment. Additionally, drivers of vehicles carrying biosolids should be required to participate in ride-along training using the pilot-copilot concept. This provides new employees with a hands on break-in period which familiarizes them with the Generator's facility, the application sites, routes, company protocol, and contingency procedures.

Drivers of vehicles carrying biosolids should be provided with training to develop and maintain a basic knowledge of biosolids, their characteristics, and why biosolids are used in farming. They should be provided with a Biosolids Fact Sheet developed by the Generator (Generator GMP-5, Appendix D) and encouraged to ask questions, tour wastewater facilities, attend seminars, and read literature. Copies of the Fact Sheets should be kept in each truck and at the Transporter's office. Some basic information about biosolids characteristics taken from Appendix D is listed below.

- Biosolids are non-hazardous and non-toxic.
- There is a public misperception that biosolids are raw *human wastes*. Actually, biosolids are agricultural fertilizers/soil conditioners produced from extensive physical/chemical/biological treatment of sanitary waste.
- Biosolids are primarily organic and can exist in the liquid to solid form.
- Biosolids contain nitrogen, phosphorous, trace metals, and potentially contain pathogenic organisms and other organic and inorganic constituents.

Training is also necessary to provide drivers with safety and accident/spill response skills. Bi-weekly safety meetings can be held to discuss potential problems and summarize the past two weeks' performance. On-the-spot tailgate meetings can clarify a safety procedure, issue, or problem before it becomes a hazard. Additionally, drivers can participate in California Highway Patrol (CHP) safety workshops and review safety films and brochures. Practice in spill/accident response should be required at least quarterly with the goal of becoming proficient in spill cleanup, communications, and providing accurate information to law enforcement and emergency response personnel or other roadway assistance. Drivers should be equipped with the proper personal safety equipment including gloves, hard hat, and safety shoes.

3. Maintain vehicles and trailers in a safe operating condition.

Purpose: Maintenance of tractors and trailers in optimal operating condition is paramount in ensuring that biosolids are transported in safe vehicles and that potential breakdowns are minimized. Only clean vehicles which provide dust and liquid containment should be operated to avoid negative public perception.

Implementation: Routine maintenance should be performed at least as frequently as recommended by the vehicle and equipment manufacturer. Drivers should promptly report malfunctioning or damaged vehicles and equipment, and repairs should be conducted expeditiously, according to manufacturer specifications. Drivers should conduct a formal pre-trip safety inspection (check tires, hoses, lights, brakes, trailer, etc.) prior to each biosolids hauling trip. Procedures for getting a vehicle towed and repaired when problems arise away from the company shop should be developed.

4. Operate vehicle safely and drive courteously at all times.

Purpose: Safe and courteous driving is critical in order to ensure that biosolids are transported on public roads without incident. Drivers are encouraged to maintain a positive public image and to avoid creating a negative public perception.

Implementation: Some basic driving skills that should be remembered during the transportation of biosolids include the following:

- Practice defensive driving and obey all traffic rules.
- Drive courteously at all times.
- Be aware of other drivers and maintain safe following distances.
- Follow all rules of the road and adjust driving habits in response to road conditions.
- Drive proactively rather than reactively.

5. Follow proper loading, tarping, and sealing procedures.

Purpose: The use of proper loading, tarping, and sealing procedures promotes good public relations. Tarping minimizes odors from being released from the trailer and rain from saturating the biosolids. Proper sealing of the tailgate, hopper bottoms, and valves of the trailer prevents free liquids from being discharged during transport. Loading procedures that result in a uniform load distribution over the axles and within the trailer will minimize the possibility of the trailer overturning due to a shifting load. Proper loading procedures will also prevent the violation of highway weight limits and issuance of CHP citations.

Implementation: Drivers should obtain a uniform load distribution by utilizing the a platform scale or individual axle scales, and closely monitoring trailer placement and the loading operation process. If possible, the weight on each axle should be determined separately and checked against legal limits. If legal limits for the entire load or individual axles are exceeded, excess material should be unloaded and the load redistributed. The tarp should be properly secured with tie downs during transport of the trailer to and from the land application site. Any rips or tears in the tarp should be repaired prior to departure or as soon as possible. The overall trailer condition and seals should be inspected for water tightness and leaks after loading. The latches on the tailgate should be checked and adjusted, as necessary, before transport and at each scheduled stop.

6. Minimize nuisance potential during transport.

Purpose: Nuisances are the single biggest concern in the management of biosolids. It is critical to minimize nuisances during travel in order to avoid community impacts. Transportation nuisances mainly include or result from odor releases, the use of unapproved routes, and non-emergency stopovers.

Implementation: With a few exceptions, biosolids continue to undergo biological decomposition in transport trailers. This is especially true on hot days. Utilizing tarps that are in good condition and minimizing the amount of time biosolids are stored will greatly assist in odor control with most biosolids. In some cases, however, the use of a masking agent or deodorizer may be necessary.

The primary and alternate routes to land application sites are developed to provide the most direct route, while minimizing the amount of public contact and any related potential adverse impacts. Non-emergency stops increase potential adverse impacts including odor complaints and negative public perception. Impacts can be avoided by taking minimal rest stops and by planning fueling, meals, and rest breaks prior to biosolids loading or after biosolids off-loading at the application site. When this is not possible, combining meals, scheduled breaks, and fuel stops to the greatest extent possible is recommended. Tractor trailer rigs should be parked as far as possible from restaurants and other areas where the public congregates. The intent here is to minimize public contact, odor complaints, and negative public perception.

7. Keep ignition sources away from/do not physically enter tarped trailer loads of biosolids.

Purpose: Biosolids are not combustible under ordinary circumstances. However, if stored in airtight or tarped transport containers for an extended period, methane gas may be produced, which could ignite or explode in the presence of a spark or open flame. Hydrogen sulfide gas also may be generated in sufficient quantities to be a hazard in enclosed areas, such as tarped transport containers.

Implementation: Drivers should avoid the use of open flames (including the use of a cigarette lighter) in confined areas and around sealed transport vehicles. Transport containers should be vented if biosolids have been stored for any extended length of time. Trailers should not be parked where there is a possible source of combustion. If ignition occurs, it should be extinguished with dry chemical, water spray, or foam.

Exposure to gases can be avoided by removing the container tarp prior to unloading and discharging as much material as possible prior to employees entering the container. The tarp should always be removed and the trailer ventilated before it is physically entered.

8. Carry proper biosolids documentation at all times.

Purpose: Source documentation allows for material identification in the event of questions from law enforcement authorities, public officials, and other interested parties regarding what type of material is being transported, material origin and characteristics, and material destination. It also provides a mechanism for tracking the quantity of biosolids being hauled from the Generator to the Applier and the location of final delivery.

Implementation: A Biosolids Fact Sheet, similar to that shown in Appendix D, should be requested from the Generator or Applier and carried in the Transportation vehicle at all times. The Fact Sheet describes the physical/chemical/biological characteristics of biosolids, proper handling practices, hazard potential, and Generator information.

Additionally, a weight ticket, listing the source and amount of biosolids, should be in the driver's possession during the haul and backhaul. Weight tickets which include source, quantity, tractor and trailer license numbers, and driver name should be completed in triplicate. One copy should be given to the Generator prior to leaving the facility if the load has been weighed or at a later date if loads are weighed offsite. One copy should be given to the Applier when the biosolids are off-loaded. The Transporter copy should be filed at the Transporter's office and kept for at least a one year period of time unless regulations require a longer period.

9. Clean biosolids and mud from vehicle before entering public roads.

Purpose: The outside surfaces of tractors and trailer are subject to becoming caked with biosolids, mud, and dirt when biosolids are loaded/unloaded at the treatment plant or the application site. Minimizing the tracking of biosolids and mud onto public roadways is necessary in order to reduce the potential for odor and nuisance complaints, as well as accidents.

Implementation: Compressed air or high pressure water can be used for cleaning. Care should be taken with the use of water to prevent runoff from the plant/site and unsightly conditions. The Transporter should coordinate with the Applier for the removal of material inadvertently deposited by the Transporter on public roads around the application site (Applier GMP-11).

10. Unload biosolids only in designated areas at land application sites.

Purpose: Biosolids must be unloaded only in designated areas. This avoids the unintentional placement of biosolids on an unpermitted site, in the wrong field, within buffer areas, etc.

Implementation: Drivers should be provided with a map and directions to the application site showing all fields, roads and access/egress points. Prior to arriving at the site, it is necessary for the driver to know the field where the biosolids are to be off-loaded. This requires communication with the Applier. It is recommended in Applier GMP-18 that the Applier use identification devices such as signs, flags, and tapes which can easily be seen by the driver, to mark application field access points, off loading areas, buffers, and truck clean-up stations. The driver should be knowledgeable of these identification devices and comply with these markers during off-loading operations.

11. Practice appropriate health safeguards.

Purpose: Biosolids are treated to reduce pathogens. Nonetheless, there is the potential for exposure to pathogenic microorganisms if appropriate health safeguards are not followed. Major routes of infection are ingestion, inhalation, and direct contact.

Implementation: The use of common sense personal hygiene and work habits provides adequate protection for drivers handling biosolids. Additional recommendations include (WEF, 1991):

- *Always wash hands after contact with biosolids.*
- Avoid touching your face, mouth, eyes, nose, or genitalia.
- Never eat, drink, smoke, or use the restroom before washing your hands.
- Eat in designated areas away from biosolids-handling activities.
- Do not smoke or chew tobacco or gum while working in direct contact with biosolids.
- Use gloves when touching biosolids or surfaces exposed to biosolids.
- Remove excess biosolids from shoes prior to entering an enclosed vehicle.
- Keep wounds covered with clean, dry bandages.
- Change into clean work clothing on a daily basis.

If contact with biosolids occurs, the contacted area should be washed thoroughly with soap and water. Antiseptic solutions should be used on wounds and the wound bandaged with a clean, dry dressing. For contact with eyes, eyes should be flushed thoroughly, but gently. The Centers for Disease Control recommends that immunizations for diphtheria and tetanus be current for the general public, which includes all wastewater workers. Boosters are recommended every ten years. The tetanus booster should be repeated in the case of a wound that becomes dirty if the previous booster is more than five years old. A doctor should be consulted regarding direct exposure through an open wound, eyes, nose, or mouth (WEF, 1991). It should be noted that a Hepatitis "A" vaccine has recently been developed and is available to the general public. Consequently, those working with biosolids may wish to consider this vaccination as an additional protection (Yanko, 1997).

Transporters are encouraged to thoroughly clean and disinfect all trailers that transport biosolids before using the trailers to haul grain or fodder or other animal or human foodstuffs.

References

Water Environment Federation (WEF). 1991. "Biological Hazards at Wastewater Treatment Facilities." Water Environment Federation (formerly Water Pollution Control Foundation), Alexandria, VA.

Yanko, William. 1997. Personal communication.

APPLIER MANAGEMENT PRACTICES
Chapter Four

I. APPLICABILITY & RESPONSIBILITIES

The Applier is defined as the person who applies biosolids on the land surface or injects biosolids below the land surface to condition the soil and/or fertilize crops or vegetation grown in the soil. Appliers include persons or companies engaged in the application of biosolids on land (i.e., land application companies and those Generators, Transporters, and Growers directly involved in and responsible for the land application operations). The information in this chapter is intended to apply to the application of bulk biosolids to agricultural land and not to the application of smaller quantities for landscaping, gardening, and other uses.

The Applier's primary responsibilities are to:

- Understand the characteristics of and proper handling procedures for biosolids and ensure that only suitable biosolids are recycled for agricultural use.
- Comply with all regulations and contractual arrangements governing the land application of biosolids.
- Perform operations in a safe and methodical manner that benefits the soil and plant fertility without compromising the long term productivity of the farming operation.
- Perform operations in a manner that protects the environment, does not create nuisance conditions for surrounding communities, and maintains a good pubic image for the industry.
- Maintain records and deliver information as required.
- Communicate and coordinate with the Generator, Transporter, and Grower.

II. CHECKLISTS

A. Regulatory Requirements

Table 4-1 presents a checklist of the Part 503 requirements specific to the Applier. In addition to the Part 503 requirements, the Applier must also be aware of additional federal, state, regional, and local requirements governing land application not discussed here. The Applier is encouraged to contact state and local regulatory agencies, e.g., Regional Water Quality Control Board or Local Enforcement Agency in the County, about additional statewide or site specific requirements. A full page checklist is reproduced in Appendix B.

B. Good Management Practices

Table 4-2 furnishes a list of Good Management Practices (GMPs) for use by the Applier during the application of biosolids to agricultural sites in California. Each of these GMPs is further explained in Section III following this list. A full page checklist is reproduced in Appendix B.

Table 4-1
PART 503 REGULATORY REQUIREMENTS CHECKLIST
APPLIER

	CITATION		✓
1.	503.12(a)	Apply biosolids in accordance with all applicable federal requirements.	
2.	503.12(b)	Do not exceed any of the cumulative pollutant loading rates, Table 2 of 503.13, at a land application site.	
3.	503.12(e)(1)	Obtain necessary information on biosolids quality from the Generator.	
4.	503.12(e)(2)(i), (ii), (iii)	Contact federal and/or state permitting authority regarding whether bulk biosolids subject to 503.13, Table 2 CPLRs were applied to the site since July 20, 1993. If bulk CPLR biosolids were not applied to the site since July 20, 1993, the cumulative amount of each Table 2 pollutant may be applied to the site. If bulk CPLR biosolids have been applied to the site since July 20, 1993, the cumulative amount of each pollutant previously applied to the site is used to determine the additional amount of pollutant that can be applied to the site in accordance with Table 2.	
5.	503.12(e)(2)(iv)	Do not apply biosolids to a site if CPLR biosolids have been applied to the site since July 20, 1993 and the cumulative amount of each pollutant applied is not known.	
6.	503.12(h)	Provide notice and necessary information to comply with applicable Part 503 requirements to the owner/leaseholder of the land on which the bulk biosolids are applied.	
7.	503.12(j)	Provide written notice to U.S. EPA and the state permitting authority prior to the land application of bulk CPLR biosolids.	
8.	503.14(a)	Protect threatened or endangered species or their designated critical habitat.	
9.	503.14(b)	Protect surface waters and wetlands.	
10.	503.14(c)	Do not apply biosolids within 10 meters of any waters of the United States.	
11.	503.14(d)	Apply bulk non-EQ biosolids at an application rate equal to or less than the agronomic rate for the crop or vegetation.	
12.	503.15	Meet the pathogen reduction and vector attraction reduction requirements when bulk biosolids are applied to the land.	
13.	503.17(a)(3), (4)(ii), (5)(ii)	Maintain certain records of data collected indefinitely and certain records for 5-years for CPLR biosolids.	
14.	503.17(a)(5)(ii)	Prepare and supply annual reports to the permitting authority for each year when 90% or more of any cumulative pollutant loading rate is reached for the site.	
15.	503.32(b)(1)(ii), (b)(5)	Meet various site restrictions when the pathogen reduction level is Class B.	
16.	503.33(b)(9), (b)(10)	If vector attraction reduction requirements are not met prior to land application, comply with Options 9 or 10.	

Table 4-2
GOOD MANAGEMENT PRACTICES CHECKLIST
APPLIER

	PROGRAM MANAGEMENT	✓
1.	Train employees to properly administer the land application program.	
2.	Provide a knowledgeable spokesperson to handle public relations.	
3.	Prepare a written Site Management Plan.	
4.	Maintain accurate and well organized records.	
5.	Prepare and distribute routine Operations Status Reports.	
6.	Promptly notify the stakeholders about regulatory violations and other incidents.	
	OPERATIONS	✓
7.	Implement a Nitrogen Management Plan.	
8.	Adequately size buffer zones.	
9.	Maintain a minimum depth to potable groundwater of 10 feet.	
10.	Incorporate biosolids applied to tilled fields as soon as possible after application.	
11.	Clean all vehicles and equipment prior to entering public roads.	
12.	Minimize soil compaction.	
13.	Properly manage staging and storage areas.	
14.	Restrict public access by posting *No Trespassing* signs or instituting other measures.	
15.	Minimize dust emissions during biosolids applications.	
16.	Minimize ponding of liquid biosolids on soil surfaces when using subsurface injection.	
17.	Verify regulatory requirements and GMP checklist compliance by Generator, Transporter, and Grower.	
18.	Clearly identify site access routes and staging areas.	
19.	Practice appropriate health safeguards.	

III. GOOD MANAGEMENT PRACTICES DISCUSSION

This section provides an explanation of the management practices listed in Table 4-2. For each management practice, the purpose of the practice is discussed along with guidance for implementing the practice. Supplemental materials referenced in the text are included in the appendices.

1. Train employees to properly administer the land application program.

Purpose: Successful land application depends on having a well-trained staff. All personnel must recognize their duties and responsibilities to comply with all applicable regulatory requirements, protect human health and the environment, meet contract obligations, and avoid nuisance conditions that impact surrounding communities and draw negative attention to the operation. Maintaining the trust and confidence of Generators, regulators, and the public requires a dedicated and knowledgeable staff and a land application company committed to maintaining the skill of that staff. Training is provided to match the level of responsibility of each employee. Employees can generally be grouped into management/administrative (management) personnel and operations staff.

Management personnel keep abreast of current regulatory issues and have a good understanding of all site operations, monitoring, recordkeeping, and reporting requirements. They have a thorough knowledge of the Site Management Plan (Applier GMP-3) and enough training to know how to respond effectively to day-to-day challenges as well as crises. For example, these personnel should be sufficiently familiar with Part 503 to be able to interpret a Generator's data and determine when the biosolids are out of compliance with pollutant quality criteria, pathogen and vector attraction reduction requirements, etc. and, if necessary, are able to provide guidance for returning to compliance.

Operations personnel are directly involved with the loading, spreading, and incorporation of the biosolids and equipment maintenance and repair. They serve a crucial role on the Applier's *front lines*. They should understand the characteristics of biosolids and proper handling and application methods and should be knowledgeable about good personal hygiene practices to avoid exposure to pathogens in the biosolids (Applier GMP-19). These employees should be familiar with the Site Management Plan and trained in how to properly deal with people who might enter the land application site without authorization from the owner.

Implementation: The Applier should provide appropriate training for all employees. It would be helpful to have a designated individual or individuals responsible to train new staff and to provide periodic refresher training. This person (referred to here as a "biosolids training officer(s)") would also serve as a mentor to other employees in the organization and be a point of contact (in concert with the spokesperson discussed in Applier GMP-2) for answering questions and resolving problems. Training tools can include reference materials (e.g., U.S. EPA guidance documents for Part 503, WEF/CWEA training manuals, and other publications), knowledgeable regulators, the cooperative extension service, Generators, and other biosolids related or agricultural organizations. It is important that the training officer(s):

- Have a thorough understanding of all aspects of biosolids land application.
- Attend routine training sessions to keep up-to-date in all aspects of biosolids management.
- Keep employees up-to-date regarding the relevant information necessary to fulfill their job responsibilities.

The biosolids training officer(s) must be proficient in those aspects of biosolids land application being taught to the various employees in order to adequately train these employees. This requires a thorough knowledge and understanding of the Applier's Site Management Plan, on-going land application site operations, agricultural practices, regulations, permit requirements, contractual responsibilities, and good neighbor policies.

It is recommended that the biosolids training officer(s) receive annual refresher training in biosolids related information. Currently available biosolids-specific training includes: CWEA's Biosolids Land Application Training Course, CWEA's Annual Biosolids Conference held alternately in northern and southern California, and the WEF's Annual Biosolids Specialty Conference held at various locations around the nation. Additionally, the CWEA's Regional Training Conferences, held alternately in northern and southern California, the CWEA Annual Member Association Conference, and the WEF Annual Conference can be worthwhile when biosolids sessions are offered. These courses/conferences can be beneficial to all Applier employees, and therefore the Applier is encouraged to send as many employees as possible.

The biosolids training officer(s) will need to provide materials obtained at the various courses/conferences to staff in the organization. One suggestion would be to maintain a library of training manuals, Part 503 guidance materials, permits, contracts, and other information in a central location where the information can be easily accessed by staff. For large firms, libraries may need to be set up in multiple locations.

Additionally, periodic meeting can be convened to teach/update co-workers, including field personnel, about new information learned during the training, to review existing information, and to answer questions and address any employee concerns. One means of doing this would be to hold informal tailgate meetings on a quarterly basis. Another possibility is to convene mandatory training to discuss specific GMPs, regulations,

or operating practices. Outside contacts from regulatory agencies, Generator facilities, and CWEA could be invited to speak at these meeting.

2. Provide a knowledgeable spokesperson to handle public relations.

Purpose: The long-term viability of agricultural land application depends on establishing and maintaining credibility through good public relations founded on accurate technical data. The credibility of the industry which has been built from many years of hard work can be easily destroyed if insensitive or inaccurate information is communicated to the public. The Applier's operations are subject to close scrutiny by several groups, including Generators, regulators, the media, environmentalists, and others. Appliers need to be aware of this scrutiny and designate a knowledgeable trained spokesperson for handling public relations. At smaller companies, the biosolids training officer may also act as the spokesperson.

The spokesperson should be available to provide accurate information with courtesy and candor in response to public or media inquiries during non-crisis and crisis situations. This individual should be well informed about biosolids related issues and the Applier's specific site activities in order to project a positive industry image, even when faced with a potentially hostile audience.

Implementation: A spokesperson should be selected based on his or her knowledge of biosolids and related reuse issues, understanding of regulations and land application operations, and ability to communicate and deal with people. Specific responsibilities should include the following:

- Respond to inquiries and problems.
- Maintain good relations with neighbors and regulators.
- Stay current in communications training skills and biosolids information.
- Provide communication skill information to other employees.
- Help create a company culture that projects a positive industry image.

The spokesperson should be responsible for responding to telephone, written, or in-person inquiries in a timely and courteous manner. If a problem develops, such as nuisance dust or odors, that get community and/or media attention, the spokesperson's responsibilities should be to gather all the facts, determine the causes, and stay informed about the implementation of corrective actions as well as preventative actions to avoid future recurrences. The spokesperson should respond to the community/media confidently and candidly and in timely manner without being defensive.

The spokesperson should be instrumental in establishing and maintaining good relations with neighbors, community leaders, and regulators through an open exchange of information. This can be accomplished by pre-notifying adjacent property owners of proposed applications and attending community and regulatory functions where the issue of biosolids reuse is being discussed.

The spokesperson will benefit from both the training for management personnel covered in Applier GMP-1 and specific training in public relations techniques and communication skills. WEF has developed the *Public Education Handbook*, which includes valuable information on topics such as public communications and media training (WEF, 1995). WEF also offers an intensive Media Training Program to "regional spokespersons" who represent WEF on biosolids issues. An abbreviated version of this training is available (on a limited basis - first come, first served) at a preconference workshop of the WEF Biosolids Specialty Conference. This training also may be offered in the future at member association functions (e.g. CWEA conferences), depending on available resources.

To develop interpersonal communications and crisis management skills, the spokesperson can utilize audio and visual training tapes, which may be obtained at local libraries and bookstores or through mail order

catalogues. One recommended book is *The Popular Plant Manager* (WEF, 1986), which provides excellent guidance on developing a public education program. Additionally, involvement in public education committees of organizations such as the CWEA will provide some invaluable insights in dealing with the public as will attending conferences sponsored by CWEA, Biosolids Recyclers of Southern California, and other organizations to learn more about public education, media relations, and biosolids-related issues in general.

The spokesperson should share both communication "tips" and important public relations issues with other employees on a regular basis. These may be especially helpful to the field personnel, who may be approached for information on an impromptu basis.

3. Prepare a written Site Management Plan.

Purpose: Land application operations should be conducted in accordance with a well organized, written Site Management Plan (Plan) that is approved by the appropriate regulators and Generators. The primary purposes of the Plan are to provide guidance to the Applier's staff in proper land application operations and outline procedures that should be followed in emergencies or other situations. The Plan serves as a tool to demonstrate to the Generator and regulatory agencies that the Applier is following acceptable practices, complying with regulations, protecting human health and the environment, avoiding nuisance conditions, and preparing for emergencies.

Implementation: A Plan should be developed for each site which is permitted to receive biosolids. The Plan should contain, at a minimum, the following sections:

Site Information - The Plan should show the following features on a current USGS map(s): locations and designations of the overall site and fields within the site and the locations of all roads, property lines, occupied buildings, and other structures, wells and streams, staging/storage areas, buffer zones, required setbacks, and access points. Each field location should be described using Township/Range/Section, latitude and longitude, street address and cross roads. A written description of how to get to the site should be provided, as well as names, addresses, and phone numbers of Grower(s) and owner(s) and consent forms or agreements with each which acknowledge their willingness to utilize biosolids for agricultural purposes, certify compliance with Class B site restrictions, and disclose future sale of the property (Grower GMP-5, Appendix F). Applicable regulatory permits with site restrictions and special requirements noted (i.e., avoid spreading during windy conditions) should be provided and anticipated accessibility during wet conditions should be described.

Land application practices - Methods of spreading and incorporation, types and availability of equipment, scheduling/limitations on spreading and incorporation times, dust and odor control measures, monitoring and management practices, agronomic loading rates, nutrient management measures, expected applications on site from other Appliers, operations reports, and maintaining good neighbor relations should be discussed. Examples of calculations used to compute nitrogen and pollutant loading rates should be provided.

Farming Practices - Information provided in the section should include available background soils data, past and proposed agricultural practices, types of crops grown, crop planting and harvesting schedule, expected yield, commercial fertilizer use, plan for ensuring Class B site restrictions are met, and plan for communicating with Transporter and Grower.

Contingency Planning - This section should provide contingency procedures to be used during inclement weather, wet soil conditions, equipment breakdown, unavailability of application site, worker illnesses and injuries, and other events. Response to spills and odor and dust complaints should be discussed and

backup disposal/reuse options and backup sites with soil types that facilitate use in wet weather conditions should be described.

The Plan is a dynamic document that may need to be customized for each Generator. Sections may be added or deleted depending on the requirements of the Generator and site-specific factors. It is essential that the Plan provide a clear and concise picture of the responsibilities of the four primary parties involved in the land application project so that the activities of these parties are not conducted in isolation. Rather, each party should work in concert with the others to understand and fulfill their own responsibilities and to make sure nothing is overlooked that might negatively impact the project. The Applier is the central player and should routinely ensure that all participants meet their responsibilities.

4. Maintain accurate and well-organized records.

Purpose: Part 503 requires that specific records be kept to demonstrate compliance with the pollutant concentrations and loading limits, pathogen reduction requirements, vector attraction reduction requirements, and management requirements. Records must be kept for five years, except for cumulative pollutant loading information, which must be kept indefinitely. In addition to collecting and retaining the required information, a well-organized recordkeeping system is necessary to maintain an effective and publically acceptable biosolids management program. An efficiently-organized system will contribute to the credibility of the records during examination of the land application practices by regulators, Generators, and others. In addition to demonstrating compliance with Part 503, sound data management provides better accessibility of information to allow quicker answers to be obtained in the event of a problem/crisis. Well kept records are a good housekeeping feature that reflects the professionalism of the Applier.

Implementation: There are three types of data management systems suitable for land application programs: management by hand, computerized spreadsheets, and relational database management. Selection of the most appropriate method for a given land application project will depend on the size of operation (i.e., acreage and tons applied), amount of data that needs to be managed, required accessibility of the data, and available budget.

Data management by hand is the simplest but most time-consuming and labor-intensive approach. This method may be appropriate for very small operations that handle a small amount of biosolids from a single source. As the quantity of biosolids increases and/or the volume of data from different sources increases, data management by hand becomes ineffective because of the considerable time and compilation effort required.

Computerized spreadsheets offer another popular option for data management. User-friendly software such as that from Lotus, Excel, and QuatroPro makes it convenient to manipulate data in a variety of ways and readily modify spreadsheets to accommodate changes in the way the data are reported. Additionally, CWEA offers a software package, BIOSLDS™, specifically for land application planning and management. However, as more data are added, the handling of the data in spreadsheets may become very cumbersome, especially if information must be tracked on several different spreadsheets.

Another approach to the traditional forms of data management is the relational database management system (RDBMS). RDBMS allows independent compositions of data (e.g., biosolids quantity and quality data, transportation, and land use information) to be stored in one place and cross referenced and related through the use of key fields. Using a key field name (e.g., Site Name), a relational database can combine the information as appropriate. For example, if a regulator should question the agronomic loading rate at a particular site, the landowner's phone number could be retrieved through the loading rate file without opening a separate file on landowner information. RDBMS eliminates the need for maintaining and updating many redundant data sets. One commercially available system, BioEDGE®, integrates a relational data base with

with a geographic information system (GIS) and global positioning system (GPS). The BioEDGE® database maintains data for the generation, transportation, and use of the biosolids as well as location information, such as site boundaries, streams, roadways, and other physical features (Kuchenrither and Williams, 1993).

5. Prepare and distribute routine Operations Status Reports.

Purpose: The Applier must maintain effective communications with other stakeholders associated with the land application project, including the Generator, Transporter, Grower, regulatory agencies, and others. By documenting routine operations in Operations Status Reports the Applier will keep all interested parties informed about land application activities, thereby building confidence and trust and creating an environment of mutual respect in which all parties "buy into" the project. This approach will help allay concerns that biosolids land application is occurring without proper oversight from the regulators and others. The report also provides a mechanism through which the Generator can oversee the Applier's operation to identify regulatory and contract compliance issues, i.e., detect and prevent any problems that might jeopardize the operation. The report can additionally be used as a line of communication between the Applier and Grower for transmitting information relative to the status of biosolids applications on the Grower's fields.

Implementation: The Operations Status Reports must present a clear and concise picture in an organized format about on-going activities at the Applier's site(s). Various types of reports, submitted on a frequent on-going basis, will facilitate this transfer of information. Operations Status Reports, therefore, should include the following: Field Change Notification, Monthly Activity Report, Field Summary Report, Grower Certification, and Annual Report. In presenting data, the Applier is encouraged to use tables and figures to the extent possible.

Field Change Notification - This report notifies the Generator when biosolids applications will cease on one field and commence on the next field so that the Generator knows at all times where the biosolids are being applied. Field changes should be faxed or electronically transferred to the Generator at least twenty four (24) hours prior to the scheduled change to provide the Generator with an opportunity to review, inspect, and approve of the site move. An example of a Field Change Notification is included in Appendix H.

Monthly Activity Report - This report summarizes land application activities on a monthly time basis and should be prepared and submitted to the Generator within thirty days of the end of the reporting period. The following information should be included *for each field on which biosolids were applied during the month:*

- Tabular list of all permitted fields updated with the last application date.
- Field designations and associated sizes.
- Quantity in wet tons of biosolids hauled from each source per day.
- Total quantities in both wet and dry tons per month from each source.
- Methods of application.
- Written description of regulatory violations, public complaints, and/or problems and corrective actions.

Field Summary Report - This report summarizes activities on a field-by-field basis for each application of biosolids between crop plantings and is submitted within 30 days of the end of the application. An example of a Field Summary Report is included in Appendix I. It includes *for each field:*

- Field identification, location (Township/Range/Section and crossroads), and size.
- Quantity and sources of biosolids applied in wet tons, dry tons, and dry metric tons.
- Dates of application (beginning and ending).
- Cumulative pollutant loading rates in kg/hectare.
- Type of crop(s) to be grown and projected dates of planting and harvesting.
- Crop nitrogen requirement(s) and carry-over nitrogen in lbs/acre and kg/hectare.

- Carry-over nitrogen and nitrogen from non-biosolids sources in lbs/acre and kg/hectare.
- Biosolids nitrogen loading in lbs/acre and kg/hectare dry weight (include calculations; indicate how the biosolids from the various sources will be accounted for in determining loading rates for nitrogen and metals and crop waiting periods; include these data in the tabular summaries described previously).
- Certifications (federal, state, and local regulatory compliance)
- Analytical Data.

Grower Certification - Certain crops are restricted from being harvested for a full 38 months following the application of Class B biosolids. In order to verify that the restricted crops are not being harvested, it is recommended that a compliance certification statement, signed by the Grower, be submitted on a quarterly basis for each field treated with biosolids. This activity should continue for the full 38 months following each application (Generator GMP-10, Grower GMP-5). A certification example is provided in Appendix F.

Annual Report - This report contains information about all activities for the period covering the previous calendar year and is submitted by February 19 of each year. The report shall include *for each field,* the information required in the Field Summary Report plus:

- Names and addresses of Appliers and Growers (leaseholders and owners).
- Lifetime dry tons of biosolids applied.
- Biosolids loading rate in dry tons/acre and dry metric tons/hectare.
- Actual crop(s) grown and dates of planting and harvesting.

6. Promptly notify the stakeholders about regulatory violations and other incidents.

Purpose: The Applier, Generator, Transporter, Grower, and regulatory agencies (e.g., RWQCBs) are all stakeholders in the Applier's land application project. Hence, they must work cooperatively to solve important problems and ensure that the project meets all applicable regulatory requirements and follows good management practices. Building confidence and trust among all parties requires that open channels of communication be maintained and used. Any incident involving a violation of a regulatory requirement, transportation accident, biosolids spill, uncontrolled runoff from the land application site, nuisance condition, and other problem affecting human health or the environment needs to be immediately brought to the attention of the other stakeholders. It is preferable that the stakeholders learn first hand about the problem rather than finding out from third party sources such as the media. The stakeholders can then share ideas and develop a common strategy for solving the problem. This approach gives all parties input into developing the corrective measures to resolve the problem and prevent its recurrence. The technical and public relations resources of the stakeholders can be very effective in combating any exaggerated or misleading claims of the public and media.

Implementation: The Applier's spokesperson (Applier GMP-2) should report any regulatory violation or other incidents described above as soon as possible, but no later than 24 hours from the time the Applier becomes aware of the circumstances; a written letter should be provided to the stakeholders within five days. This written submission should include the following information (U.S. EPA, 1995b):

- Period of incident including exact dates and times.
- Description of the incident and its cause.
- The estimated time the incident will continue if it has not already been corrected.
- Steps taken, being taken, or planned to reduce, eliminate, and prevent recurrence of the incident.

7. Implement a Nitrogen Management Plan.

Purpose: An excessive application of nitrogen from biosolids, animal manures, or conventional N fertilizers may cause leaching of nitrate nitrogen to the groundwater, resulting in possible human and animal health problems. The U.S. EPA has established a maximum allowable drinking water concentration for nitrate of 10 mg/l as nitrate nitrogen (U.S. EPA, 1995a). Hence, nitrogen management planning is an essential element of a well operated land application project. The purpose of nitrogen management planning is to minimize leaching of nitrogen from the root zone by matching as closely as possible the quantity of nitrogen applied to the quantity needed by the crop, i.e., agronomic rate. Appliers, as well as Growers, must understand the principles of nitrogen management planning and integrate these principles in the land application and farming operations.

Implementation: Nitrogen management planning involves providing the proper agronomic application rate for the crop being grown, thus minimizing the amount of nitrogen that will pass through the root zone of the crop. The application of excess nitrogen to a field does not increase yield, but does increase unaccounted for nitrogen losses (CDFA, 1993). In theory, applying biosolids at an agronomic application rate will eliminate the application of excess nutrients, thus lowering nitrogen losses to ground or surface water. For further information, the *Western Fertilizer Handbook* (California Fertilizer Association, 1985) may be useful, and the reader is encouraged to obtain the CDFA videotape entitled *Best Management Practices for Nitrogen Fertilizer and Water Use in Irrigated Agriculture* (CDFA, 1993).

Several factors affect the amount of biosolids that can be applied: total nitrogen content and percentage of various forms of nitrogen in the biosolids, nitrogen mineralization rate, carryover (residual) organic nitrogen from previous applications, other identifiable sources of nitrogen, nitrification/denitrification losses, crop nitrogen requirements, and other site specific factors (U.S. EPA, 1995b). The following general steps should be considered when developing a Nitrogen Management Plan (U.S. EPA, 1995a).

(1) Select the appropriate application rate. Avoid applying excess nitrogen by understanding the growth requirements of the crop and using appropriate application rates. Consider all possible sources of plant available nitrogen (e.g., nitrogen available in the soil) including nitrogen contributions to the soil from legumes grown in rotation or other residual crops, carryover nitrogen from previous years of fertilization, and other significant sources of nutrients such as commercial fertilizers and irrigation water. Use the minimum amount of nitrogen necessary to meet the plant needs. Fertilizer recommendations are controlled primarily by past experiences with crop yields. Ensure that crop yield estimates are *realistic,* based on Grower-documented yield history and other relevant information. Appropriate methods include averaging the three highest yields in five consecutive crop years for the site, or other methods based upon Cooperative Extension Service's nutrient recommendations or soils data interpretation.

Using the correct organic nitrogen mineralization rate is one of the most important factors for determining the appropriate application rate. The mineralization rate is affected by the stability of the biosolids (e.g., type of digestion process) as well as the soil temperature, moisture, and climate. Mineralization rates are higher in the summer months than in the winter months due to the increased metabolic activity of the soil microorganisms (U.S. EPA, 1995b). The U.S. EPA (U.S. EPA, 1995a and 1995b) has established some average mineralization rates for various types of biosolids; however, these values are based on limited data and may not be representative for all biosolids and sites. For example, an Oregon study (Henry, 1993) conducted on various biosolids found that N mineralization varied from 20% to 65% for anaerobically digested biosolids, 15% to 19% for lagooned biosolids, and 36% to 50% for short-detention time composted biosolids in the first year. Because the mineralization rate is so variable, an alternative to using the U.S. EPA average rates is to determine rates based on local conditions and specific type of biosolids being applied. Specialized agricultural testing laboratories can establish site specific mineralization rates for biosolids using laboratory studies and computer simulations. This approach was initially developed through work conducted at the University of Arkansas (Gilmour, 1980, 1985, and 1988).

Another approach is to use soil testing before application to determine the amount of soil residual nitrogen and use this information to calculate subsequent application rates (CDFA, 1993).

Alternatively, it has been suggested that, until research based mineralization rates have been established, a conservative estimate should be used, assuming a high percentage of organic nitrogen will be mineralized in the first year. This approach would result in a reduction in the application rate, so more acreage would be needed. However, caution should be exercised when using the approach because it could result in an insufficient amount of nitrogen being available for crop utilization. In any case, consultation with the local Cooperative Extension Service or crop advisors may help determine the proper rate.

(2) Use the appropriate method of nutrient application. Use application methods that promote efficient nutrient use. For example, both the practice of incorporating biosolids into the soil as soon as possible after spreading and the use of subsurface injection in lieu of surface application result in less ammonia volatilization. Avoid application methods that contribute to soil erosion. Apply biosolids in a manner that uniformly covers the entire site, at the required agronomic loading rate, to provide relatively constant crop yields from the entire site.

(3) Properly time the application of biosolids. Apply biosolids as close as practically possible to planting time for maximum plant uptake. Time application to minimize leaching losses from rainfall or irrigation (i.e., apply after these events). Also, time application to avoid periods of heavy rainfall and critical erosion periods. When crops are grown in rotation, apply the appropriate amount of biosolids before each crop to improve the efficiency of nitrogen use and reduce total site loading.

(4) Ensure application equipment (e.g., sprayer, spreader) works properly. Calibrate equipment frequently on terrains and at speeds similar to actual spraying conditions. Check the distribution pattern of sprayer/spreader and ensure uniform distribution.

(5) Practice water conservation. Carefully monitor irrigation practices to avoid excess irrigation and prevent excessive leaching of nitrogen to the groundwater. Studies have shown that the total amount of nitrate lost from a field depends on the amount of drainage water leached past the root zone (CDFA, 1993). Use sensors to determine the need and timing of irrigation.

(6) Keep detailed records. Record information on nutrient management procedures. Include such information as brand of fertilizer used, fertilizer formulation, date and time of application, amount of application, climatic conditions during application, irrigation schedule, and annual quantities of fertilizers used.

(7) Maintain vegetative buffers around water bodies. Maintain unfertilized vegetative buffer strips around water bodies to reduce soil erosion and transport of nutrients to surface waters.

(8) Use cover crops. Use small grain cover crops to scavenge nutrients remaining in the soil after harvest of the principal crop. This is particularly helpful on highly leachable soils.

The Applier and Grower will have to work closely together to ensure that all of the above steps are implemented.

8. Adequately size buffer zones.

Purpose: Buffer zones surrounding land application sites minimize the nuisance potential to the surrounding communities, protect the ground and surface waters, and enhance public acceptance. Careful attention should be paid to the size of the buffer zone when determining the viability of a land application site. For example, sites without adequate buffers that are located adjacent to areas of high human contact, such as schools and homes, will have difficulty gaining and maintaining the support of the community.

Implementation: Buffer zones should be sized as large as practicable to minimize impacts of the land application project on local residents and the environment. The following minimum buffer distances are recommended:

Feature	Distance
Property Lines	50 ft.
Surface Waters	33 ft.[3]
Domestic Water Supply Wells	500 ft.
Nondomestic Water Supply Wells	50 ft.
Occupied Buildings	500 ft.[4]
Public Roads	50 ft.

Permits from regulatory agencies or County ordinances regulating land application may require increased or have decreased buffer zones or additional buffer zones. When there is a conflict between a buffer distance established by the regulatory agency and a distance recommended above, the Applier typically should use the more restrictive of the two distances. Additionally, Appliers must be aware of adjacent land uses. If there is possible conflict between the adjacent land uses and the land application project, Appliers should consider increasing the buffer distances or finding a more isolated site. Application near residential, commercial, and other public access areas should be avoided.

9. Maintain a minimum depth to potable groundwater of 10 feet.

Purpose: Protection of groundwater resources is one of the most important considerations in the selection and operation of a land application site. Biosolids should not be placed where there is the possibility of direct contact with the groundwater table. The depth of soil or unconsolidated material above the permanent water table provides an effective barrier for preventing the movement of pathogens and other contaminants in the biosolids to groundwater (U.S. EPA, 1995a).

Despite common acceptance that the organic content of the biosolids serves as both a physical and chemical barrier, there remains public and regulatory concern regarding the safety of biosolids application with respect to pathogen and pollutant migration. To allay these concerns, regional and local depth to groundwater requirements have been established by various agencies throughout the state. However, none of these requirements is technically based; as a result, there is no statewide consistency.

The U.S. EPA (1995a) recommends a minimum depth to groundwater of 3 - 6 feet (1 - 2 meters) at agricultural land application sites. The least restrictive depth to groundwater for biosolids land application in current California county ordinances is 5 feet (Merced, 1994, Yolo, 1996). The California Department of Heath Services (CDHS) has proposed a minimum depth to groundwater of 10 feet for certain groundwater recharge projects (CDHS, 1994). According to Straub (Straub, 1993), the current hypothesis for biosolids amended soils is that viruses adsorb to biosolids flocs, remain in the biosolids:soil matrix after land application, and are not easily mobilized. Additionally, U.S. EPA states in the preamble to 40 CFR Part 257 (U.S. EPA, 1991) that the biosolids matrix binds metals in the insoluble form and reduces their potential to leach from a landfill.

[3] Part 503 requires a minimum distance to waters of the United States of 10 meters (33 feet).

[4] Does not apply to homes occupied by the land application site Grower.

It is obvious that depth to groundwater requirements will be established for all land application programs in California. This GMP attempts to establish a reasonable depth based on the above-referenced recommendations. It appears that the CDHS requirement of 10 feet is a conservative depth considering that biosolids land application sites have a greater retentive ability than recharge areas (for the reasons stated above). Also, with respect to pathogen migration, there is a 500 feet horizontal buffer distance (Applier GMP-8) to domestic water supply wells in addition to the 10 feet vertical distance.

By maintaining this minimum separation between the land application site and potable groundwater, the Applier demonstrates a commitment to the environment, thus enhancing public acceptability of the land application project.

Implementation: When judging the suitability of a potential land application site, published literature from the local United States Geological Survey or State Water Resources Control Board should be researched to determine the depth to groundwater and the groundwater flow pattern at the site. An on-site field investigation may be necessary when data are lacking (U.S. EPA 1995a).

10. Incorporate biosolids applied to tilled fields as soon as possible after application.

Purpose: Mixing the biosolids into the soil as soon as possible after delivery and application to the site minimizes ammonia volatilization, eliminates odor release, and improves public acceptance. More importantly, this practice reflects good housekeeping that demonstrates the Applier's professionalism and willingness to be a good neighbor. Incorporation is not appropriate when biosolids are applied on land planted in permanent hay or pasture because the tillage operation would destroy the crop. Therefore, incorporation should be restricted to fields designated for tilling.

Implementation: If possible, Appliers are encouraged to incorporate biosolids on the same day they are delivered to sites that are normally tilled for crop production. However, it must be recognized that incorporation within one day cannot always be accomplished due to inclement weather, equipment breakdowns, and other factors. In these cases, delaying incorporation by up to three days from delivery and spreading is not unreasonable.

Operations should be planned to avoid applying biosolids when the Applier anticipates a significant delay between application and incorporation. If an Applier knows in advance that the biosolids cannot be applied and incorporated within the 3-day period, the Applier should make contingency arrangements (Applier GMP-3), such as temporarily stockpiling at the site (if allowed in the permit or ordinance) or diversion of the material to another application site or backup disposal/reuse site such as a landfill or composting facility.

Appliers should provide adequate application equipment at each site to ensure that the spreading and incorporation can be accomplished as soon as possible after delivery. Backup equipment (tractors, spreaders, and disc plows) should be available within close proximity to the land application site.

11. Clean all vehicles and equipment prior to entering public roads.

Purpose: Appliers must avoid creating nuisance conditions from hauling or handling biosolids on and around an application site. Tracking of mud or biosolids by transport or application equipment onto public highways draws unnecessary attention to the site, generates odors, and creates a highway hazard. During rainfall, the mud or biosolids can be washed off the road into surface waters, causing a potential pollution problem. Preventing the tracking of mud and biosolids onto highways through good housekeeping will help maintain public acceptance for the land application project.

Implementation: Appliers should clean all mobile equipment before the equipment is driven on public roads and follow other management practices as described below. The Applier should supply the necessary equipment for cleaning biosolids, mud, and dirt from transportation and application vehicles. Cleaning of tires, wheel wells, and other under carriage surfaces can be easily accomplished at the land application site using high pressure water from a water truck or hose (if available) or compressed air. Water should be used sparingly to prevent muddy conditions from developing at the wash site. Care should be taken so that wash water is contained within existing permitted fields. Cleaning with compressed air has the advantage of not creating any mud. Other management practices to minimize problems with mud should be considered, as follows (U.S. EPA, 1995a):

- Provide all-weather access roads or apply gravel or other weight bearing materials to roads.
- Use vehicles equipped with flotation tires to reduce the amount of mud caked on tires.
- Use vehicles with smaller capacity, or temporarily reduce the amount of biosolids loaded into vehicles.

Appliers are encouraged to provide at each site the necessary equipment, such as loaders, shovels, brooms, and street sweepers, to remove mud or biosolids that may be inadvertently deposited on highways due to biosolids land application and transportation activities. Appliers are directed to cleanup accumulations of mud and dirt deposited on public roads at the end of the workday when land application operations are underway. Avoiding land application operations at sites that have wet fields or access roads is another effective management tool to prevent the tracking of mud onto highways.

12. Properly manage staging and storage areas.

Purpose: Appliers must minimize any adverse impacts associated with the biosolids land application system. Deposits of biosolids left in staging and storage areas can be unsightly, cause odors, and attract insects and other vectors at the site. Runoff and leachate from these areas can pollute groundwater and surface waters. Removing deposits of biosolids from storage and staging area will mitigate the above concerns and improve public acceptance of the project.

Implementation: As a good housekeeping practice, Appliers should thoroughly remove all deposits of biosolids from staging and storage areas and apply this material at agronomic rates to the land application site. When the land application operation at a particular site is completed, the staging and storage areas should show no visible signs of biosolids residue. Appliers should manage these areas so they are fully integrated into the land application and farming operations. For example, the biosolids loading rate should be no greater in these areas than the remainder of the field. Staging areas are subject to the buffer requirements in Applier GMP-8 and all other regulatory requirements and conditions.

The United States Department of Agricultural (USDA) and U.S. EPA are developing a *Biosolids Field Storage Guide* scheduled for publication in 1998. For specific guidance on managing staging and storage areas, Appliers should refer to this document when it is available.

13. Minimize soil compaction.

Purpose: The land application project must be perceived as an integral part of the farming operation that benefits soil fertility and agricultural crop production. One potentially adverse impact of driving equipment across a farm field is soil compaction. The potential for soil compaction is directly related to soil moisture content and vehicle weight. Soil compaction can result from the application of biosolids and manures as well as many other farming practices, e.g., tilling, harvesting, etc. (RMWEA, undated A). Soil compaction decreases water and root penetration, causing reduced crop yields. If severe compaction problems occur from any farming practice, the Grower may have to deep plow (rip) the affected area when the soil is dry,

thus increasing farming costs. Continuing acceptance of land application by the farming community necessitates that Appliers minimize soil compaction effects so farmers do not incur additional expenses in using biosolids.

Implementation: Several good techniques may be used to prevent or minimize soil compaction during biosolids application and other farming practices, as follows (RMWEA, undated A):

- Select equipment to minimize the overall weight.
- Select equipment to maximize the footprint area.
- Suspend application or activity when the soil is wet.
- Minimize the traffic across the field, and/or maintain traffic lanes (controlled traffic).
- Vary tillage depths from year to year.

The footprint area can be maximized by using tractors and spreaders equipped with tracks or floatation tires. The biosolids application should also be controlled so that the number of passes of spreading or injection equipment across the field is kept to a minimum. Whenever possible, the land application system should be designed for a single pass of this equipment.

Avoiding land application sites that have wet fields is the most effective strategy to preserve soil integrity. The contingency plan required in Applier GMP-3 should contain a list of alternate reuse/disposal sites that can be used in the event the primary sites are inaccessible due to wet conditions.

14. Restrict public access by posting *No Trespassing* signs or instituting other measures.

Purpose: Part 503 requires that access to sites with low potential for public exposure such as farmland be restricted for 30 days after biosolids application. The U.S. EPA considers 30 days to be the minimum period required for pathogens in Class B biosolids to be reduced by the environment. The 30-day restriction was developed based on environmental soil conditions (e.g., more rain, less sun, and moist soil) for the Eastern United States, not for California (RMWEA, undated B). Higher ambient temperatures, dry conditions, and more sunlight in California would be expected to reduce the survival of remaining pathogens in Class B biosolids to less than 30 days.

The U.S. EPA does not provide extensive guidance on ways for restricting access, although remoteness is cited as one approach for preventing exposure of the public to the biosolids (U.S. EPA, 1994). This GMP recommends that signs be posted and/or other measures be implemented, such as fencing, to restrict public access to the land application site.

Implementation: The Applier is not the landowner and, therefore, should work with the Grower to restrict public access to Class B biosolids applied fields. *No Trespassing* signs in English and Spanish are recommended at all access points to the land application site. Typical access points where signs should be placed include roads, property lines, and pedestrian or bike paths. Along property lines, the signs should be placed at the corners and every 500 feet between the corners. Signs should be kept in place for at least 30 calendar days after the last application (Kern County, 1997). If the site is located in an area where there is a high potential for the public to contact the Class B biosolids and be exposed to the pathogens, the installation of fencing along property lines and gates on access roads should be considered. Another approach is to select sites that have limited access due to existing features such as waterways, tailwater channels, surrounding hilly terrain, and other natural barriers.

15. Minimize dust emissions during biosolids applications.

Purpose: Minimizing the generation and off-site movement of dust during land application operations is a good site management practice that Appliers should implement to maintain public acceptance. This is especially important during the application of very dry biosolids. Dust production is related to moisture content of the biosolids and soils, wind velocity, type of roads, application method, and type and number of hauling and application vehicles moving across the agricultural fields. Dust emissions from land application sites are a source of fine particulate matter (i.e., PM-10) that could cause respiratory problems in workers and the public who live downwind from the land application site. Controlling dust during high wind will substantially reduce PM-10 emissions.

Implementation: Biosolids which create dust when handled should not be land applied during windy conditions. Appliers can determine wind speed in several ways prior to commencing land application: using a portable wind meter, reading or listening to weather reports, or using a wind sock for an approximation. The wind speed should be monitored routinely during land application activities. If, under any conditions of wind or biosolids moisture content, visible dust is observed being blown downwind beyond the site boundary, it is recommended that the Applier cease operations until the wind speed drops below a speed that does not cause dust release. If the moisture content of the biosolids is less than 50%, and average wind speed exceeds 30 miles per hour, the Applier needs to take special measures to avoid dust problems. In cases where there is concern about the dryness of the biosolids being applied, the Applier should require the Generator to provide moisture/total solids data, or the Applier should test the biosolids. Other measures that Appliers should implement to further control dust are as follows:

- Reduce speeds of vehicles on dusty roads and fields.
- Apply water, chemical suppressant, or gravel to control dust on unpaved access roads.
- Schedule hauling and handling operations during low wind periods (e.g., in the morning instead of the afternoon).
- Remove accumulations of mud or dirt from public paved roads at the end of the work day (SJVUAPCD, 1996).
- Do not use blower devices or dry rotary brushes for the removal of deposited biosolids/mud/dirt from paved roads (SJVUAPCD, 1996).
- Establish vegetative cover on dirt buffers at site.
- Rewet biosolids prior to application.

Appliers should become familiar with applicable provisions in land application permits prohibiting the application of biosolids under adverse wind conditions and the transport of wind-blown biosolids off land controlled by the Applier and landowner.

16. Minimize ponding of liquid biosolids on soil surfaces when using subsurface injection.

Purpose: The application of liquid biosolids using subsurface injection can result in the ponding of liquid biosolids on soil surfaces if not properly managed. The prevention of ponding will minimize adverse impacts related to odors and vectors and run-off from the site and improve site aesthetics. Control of ponding is a good housekeeping practice reflecting a well-run operation.

Implementation: Ponding can be minimized or prevented by ensuring that all the injectors are below the soil surface, maintaining the proper flow and discharge pressure to the injectors, driving the injection vehicle at the proper speed for the given flow rate, and turning off the biosolids flow when the tractor-mounted injection unit stops or turns around at the end of a pass. Applying the biosolids in multiple passes in crosshatch pattern versus a single pass will provide uniform distribution and greatly reduce the potential for ponding caused by a high flow rate being pumped through the injectors (Jacobs et. al., 1993). If ponding inadvertently occurs, the Applier should disk the affected area as soon as possible to incorporate the biosolids into the soil.

17. Verify regulatory requirements and GMP checklist compliance by Generator, Transporter, and Grower.

Purpose: The success of the land application program depends on compliance of the Generator, Applier, Transporter, and Grower with the regulatory requirements and applicable GMPs specified in this Manual. The Applier is the central player in the land application project and should routinely make sure everyone meets their responsibilities. This is accomplished by maintaining communications with the Generator, Transporter, and Grower and ensuring that the activities of all parties are not conducted in isolation. Rather, each party should be working in concert with the others to understand and fulfill their own responsibilities and to make sure nothing is overlooked that might negatively impact the land application project.

Part 503 requires the Applier to obtain specific information from the Generator, prior to land application, concerning pollutant concentrations, nitrogen concentrations, class of pathogen reduction achieved, and the vector attraction reduction option used. The Applier should check that biosolids are being transported in accordance with the GMPs in Chapter 3. The Applier must also inform the Grower about any applicable site restrictions and confirm that the Grower is meeting the site restrictions.

Implementation: Several measures should be taken to verify compliance with the regulatory requirements and GMPs. First, the Applier should carefully review applicable monitoring reports and records supplied by the Generator to ensure that the data for pollutants, pathogens, vector attraction reduction, and nitrogen are being collected at the required frequency specified in Part 503 and that the Part 503 limits are being met consistently. For example, if metals are being monitored annually but are required by Part 503 to be monitored quarterly, the Applier should advise the Generator that the monitoring frequency needs to be increased. The Applier should routinely inspect the Transporter's trucks to determine if the trucks are being operated and maintained safely, tarps are being attached properly, tailgates are being securely closed to prevent spillage, and other GMPs are being met. The Applier should also work closely with the Grower to make sure the Grower understands and implements the site restrictions and GMPs. The notice of necessary information to the Grower should clearly indicate the site restrictions that apply to a given field. The Applier should routinely inspect the Grower's fields treated with biosolids to confirm that the appropriate waiting periods are being observed for the type of crops being grown.

The Applier should meet periodically with the Generator, Transporter, and Grower, either together or separately, to discuss compliance issues related to the regulations and GMPs and determine how these issues should be resolved. Also, the Operations Status Report (Applier GMP-5), which is distributed to the above parties, should provide a discussion of compliance problems and their solutions.

18. Clearly identify site access routes and staging areas.

Purpose: The land application site, field access routes, and staging areas within the field, should be clearly marked by the Applier in order to avoid the off-loading and application of biosolids at the wrong location. The marking method should be clearly communicated to the Transporter and field personnel prior to delivery of the first load of biosolids. By identifying access routes and staging areas, the Applier also improves the efficiency of the hauling operation, minimizing the problem of trucks not knowing where they are going and depending on field personnel for directions.

Implementation: Access routes and staging areas should be marked using flags, painted stakes, traffic cones, and signs that are easy to spot from the Transporter's trucks. In dry weather, a trail of agricultural lime is an option for farm roads to direct trucks to the appropriate staging area. Appliers should also provide maps to truck drivers, depicting the locations of application sites, field access and egress points, and staging areas.

19. Practice appropriate health safeguards.

Purpose: Biosolids are treated to reduce pathogens. Nonetheless, there is the potential for exposure to pathogenic microorganisms when handling biosolids if appropriate health safeguards are not followed. Major routes of infection are ingestion, inhalation, and direct contact.

Implementation: The use of common sense personal hygiene and work habits provides adequate protection for drivers handling biosolids. Additional recommendations include (WEF, 1991):

- *Always wash hands after contact with biosolids.*
- Avoid touching your face, mouth, eyes, nose, or genitalia.
- Never eat, drink, smoke, or use the restroom before washing your hands.
- Eat in designated areas away from biosolids-handling activities.
- Do not smoke or chew tobacco or gum while working in direct contact with biosolids.
- Use gloves when touching biosolids or surfaces exposed to biosolids.
- Keep wounds covered with clean, dry bandages.
- Change into clean work clothing on a daily basis.

If contact with biosolids occurs, the contacted area should be washed thoroughly with soap and water. Antiseptic solutions should be used on wounds and the wound bandaged with a clean, dry dressing. For contact with eyes, eyes should be flushed thoroughly, but gently. The Centers for Disease Control recommends that immunizations for diphtheria and tetanus be current for the general public, which includes all wastewater workers. Boosters are recommended every ten years. The tetanus booster should be repeated in the case of a wound that becomes dirty if the previous booster is more than five years old. A doctor should be consulted regarding direct exposure through an open wound, eyes, nose, or mouth. (WEF, 1991). It should be noted that a Hepatitis "A" vaccine has recently been developed and is available to the general public. Consequently, those working with biosolids may wish to consider this vaccination as an additional protection (Yanko, 1997).

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GROWER MANAGEMENT PRACTICES
Chapter Five

I. APPLICABILITY & RESPONSIBILITIES

The Grower is defined as the person who farms on soils amended and/or fertilized with biosolids. This includes private farmers and farm management companies and those Generators, Transporters and Appliers who are directly involved in and responsible for the cultivation of crops on biosolids-amended soil. Additionally, it includes the owner of the land if the owner is different from the farmer, such as in cases where the site is leased for farming.

The Grower's primary responsibilities are to:

- Integrate biosolids reuse into agricultural practices.
- Implement appropriate management practices.
- Develop and implement an overall nitrogen management plan.
- Maintain records and deliver information, as necessary.
- Communicate and coordinate with the Applier and, if necessary, the Generator and Transporter.

II. CHECKLISTS

A. Regulatory Requirements

Table 5-1 presents a checklist of the Part 503 requirements specific to the Grower. These include site restrictions that apply after the land application of Class B biosolids. Both the site operator and the site owner must be aware of these restrictions because they are in effect for up to 38 months following land application. This is especially important if the site comes under new management or ownership because the new farmers and owners become responsible for compliance. In addition to the Part 503 requirements, the Grower must also be aware of additional federal, state, regional, and local requirements that apply to their program, but which are not discussed here. A full page checklist is reproduced in Appendix B.

B. Good Management Practices

The Checklist in Table 5-2 provides a list of Good Management Practices (GMPs) for use by the Grower after the application of biosolids to agricultural land application sites in California. Each of these GMPs is further explained in Section III following this list. A full page checklist is reproduced in Appendix B.

Table 5-1

PART 503 REGULATORY REQUIREMENTS CHECKLIST
GROWER

	CITATION		✓
1.	503.32(b)(5)(i)	Do not harvest food crops for 14 months after application of Class B biosolids when the crop's harvested part touches the biosolids-amended soil and the harvested part is totally above the land surface. Food crops are crops consumed by humans and include, but are not limited to, fruits, vegetables, and tobacco. Examples of these crops are melons, strawberries, eggplant, squash, tomatoes, cucumbers, celery, cabbage, and lettuce (U.S. EPA, 1994).	
2.	503.32(b)(5)(ii)	Do not harvest food crops for 20 months after application of Class B biosolids when the crop's harvested part is below the surface of the biosolids-amended soil and the biosolids remain on the land surface for four months or longer prior to incorporation into the soil. Examples of these crops are potatoes, yams, sweet potatoes, rutabaga, peanuts, onions, leeks, radishes, turnips, and beets (U.S. EPA, 1994).	
3.	503.32(b)(5)(iii)	Do not harvest food crops for 38 months after application of Class B biosolids when the crop's harvested part is below the surface of the biosolids-amended soil and the biosolids remain on the land surface for less than four months prior to incorporation into the soil.	
4.	503.32(b)(5)(iv)	Do not harvest food, feed, or fiber crops for 30 days after application of Class B biosolids. Feed crops are those produced primarily for consumption by animals. Fiber crops include crops such as flax or cotton.	
5.	503.32(b)(5)(v)	Do not allow animal grazing for 30 days after application of Class B biosolids. This requirement has been interpreted to apply to grazing of domestic herds and not deer and other wild animals.	
6.	503.32(b)(5)(vi)	Do not harvest turf for 12 months after application of Class B biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.	
7.	503.32(b)(5)(vii)	Restrict public access for 12 months after application of Class B biosolids when the land has a high potential for public exposure. Land with a high potential for public exposure is that which the public uses frequently. This includes a public contact site (e.g. parks, playgrounds, or golf courses) and a reclamation site located in a populated area (e.g. a construction site located in a city).	
8.	503.32(b)(5)(viii)	Restrict public access for 30 days after application of Class B biosolids when the land has a low potential for public exposure. Land with a low potential for public exposure is that which the public uses infrequently. This includes, but is not limited to, agricultural land (e.g., farmland in rural areas, securely fenced areas, or remote land), forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).	

Table 5-2

GOOD MANAGEMENT PRACTICES CHECKLIST
GROWER

	PROGRAM MANAGEMENT	✓
1.	Develop and maintain a basic knowledge of biosolids characteristics.	
2.	Exercise proper oversight of Applier's activities.	
	OPERATIONS	✓
3.	Cooperate with Applier in development and implementation of a Nitrogen Management Plan.	
4.	Restrict public access by posting *No Trespassing* signs or instituting other measures.	
5.	Ensure that only allowable crops are harvested after the application of Class B biosolids.	

III. GOOD MANAGEMENT PRACTICES DISCUSSION

This section provides an explanation of the management practices listed in Table 5-2. For each management practice, the purpose of the practice is discussed along with guidance for implementing the practice. Supplemental materials referenced in the text are included in the appendices.

1. Develop and maintain a basic knowledge of biosolids characteristics.

Purpose: It is prudent for the Grower to be knowledgeable about basic biosolids characteristics. This is for the Grower's own benefit as well as for answering questions and alleviating fears from neighbors, public officials, and other interested parties regarding the type of material being applied to the Grower's farm.

Implementation: A Biosolids Fact Sheet, similar to that shown in Appendix D, should be requested from the Generator or Applier. The Fact Sheet describes the physical/chemical/biological characteristics of biosolids, proper handling practices, hazard potential, and Generator information. A copy should be kept at the Grower's office at all times. The Grower is encouraged to review the Fact Sheet and share pertinent information with appropriate employees. Additionally, the Grower is encouraged to ask questions, tour wastewater facilities, and read literature. Some basic information about biosolids characteristics taken from Appendix D is listed below.

- Biosolids are non-hazardous and non-toxic.
- There is a public misperception that biosolids are *raw human wastes*. Actually, biosolids are agricultural fertilizers/soil conditioners produced from extensive physical/chemical/biological treatment of sanitary waste.
- Biosolids are primarily organic and can exist in the liquid to solid form.
- Biosolids contain nitrogen, phosphorous, and trace metals and potentially contain pathogenic organisms and other organic and inorganic constituents.

2. Exercise proper oversight of Applier's activities.

Purpose: The Grower has an obligation to himself and the land lender to make sure that land application of biosolids benefits the land and farming operation over the long term and does not adversely impact human health and the environment, or create a nuisance or regulatory problem. The Grower must establish and maintain oversight of the Applier's operations to verify that the Applier is properly spreading and incorporating biosolids of acceptable quality (for metals, pathogens, and vector attraction reduction) in accordance with all Part 503 requirements and the applicable Applier GMPs listed in Chapter 4. Also, the Grower should obtain certain information from the Applier and keep certain records.

Implementation: One possible mechanism that the Grower could use for oversight of application operations is to enter into an agreement with the Applier to clearly delineate the Applier's and Grower's responsibilities. As a minimum, the agreement should contain:

- Requirement that the Applier submit to the Grower all necessary information and reports regarding the quantity and quality of biosolids applied (including the metals concentrations, cumulative metals loadings, nutrient loading, and compliance certifications), locations of fields that received biosolids, and dates of biosolids applications and a description of procedures used to meet the requirements of Part 503. The Operations Status Reports (Applier GMP-5) should supply all pertinent information.
- Statement that Grower understands the nature of biosolids, agrees to biosolids use at agronomic rates for agricultural purposes, and agrees to comply with the Part 503 site restrictions for each field for the periods of time the restrictions must be observed.
- Requirement to allow Generator and regulatory staff access to the land for inspection and sample collection purposes.
- Statement that Grower will notify Applier immediately in event of sale of the property or a change in the Leaseholder.

Appendix F includes forms that may also be useful for documenting the Grower's consent to allow the application of biosolids for agricultural purposes on the Grower's land. As necessary, Growers are encouraged to modify these forms to include other specific requirements.

The Grower is encouraged to keep well-organized records for sites where cropping or grazing restrictions or cumulative pollutant loading rate limits apply. Recording the amount of carryover nitrogen from biosolids applications and other pertinent information, such as that listed in Grower GMP-3, is recommended. This will allow the information to be readily available for the Grower to share with future Appliers, especially in cases where multiple Appliers are using a given site.

3. Cooperate with Applier in development and implementation of a Nitrogen Management Plan.

Purpose: As discussed under Applier GMP-7, the Applier has primary responsibility for nitrogen management planning (assuming that the entire crop nitrogen requirement is supplied by biosolids). However, in developing and implementing the nitrogen management plan, the Applier will require certain information and assistance from the Grower. The Grower is encouraged to refer to Applier GMP-7 and work closely with the Applier to produce a plan that realistically meets the agronomic needs of the crops being grown, avoids the leaching of excessive nitrate nitrogen to the groundwater, and integrates the Nitrogen Management Plan into overall farm operations.

Implementation: To assist the Applier in nutrient management planning, the Grower may need to provide the following types of information:

- Schedule for tilling, planting, and harvesting operations.
- Crop selection and historical fertilizer recommendations.
- Historical crop yields averaged over past five years.
- Supplemental fertilizer use, if any.
- Estimates of residual N from previous applications of biosolids, animal manures, or nitrogen fixing crops.
- Cumulative metals concentrations from previous biosolids applications.
- Soil test data, if available.
- Water quality data (i.e., nitrogen concentration), if available.
- Names and contacts of other Appliers when multiple Appliers use the same site at different times.

The Grower should cooperate with the Applier in practicing water conservation, keeping detailed records (e.g., brand of supplemental fertilizer used and formulation), maintaining vegetative covers around water bodies, and using cover crops, as applicable; in sum, ensuring the nutrient management planning becomes an integral part of the farming operation. Successful management planning requires a team effort of the Applier and Grower.

4. Restrict public access by posting *No Trespassing* signs or instituting other measures.

Purpose: Part 503 requires that access to sites with low potential for public exposure such as farmland be restricted for 30 days after biosolids application. The U.S. EPA considers 30 days to be the minimum period required for pathogens in Class B biosolids to be reduced by the environment. The 30-day restriction was developed based on environmental soil conditions (e.g., more rain, less sun, and moist soil) for the Eastern United States, not for California (RMWEA, undated B). Higher ambient temperatures, dry conditions, and more sunlight in California would be expected to reduce the survival of remaining pathogens in Class B biosolids to less than 30 days.

The U.S. EPA does not provide extensive guidance on ways for restricting access, although remoteness is cited as one approach for preventing exposure of the public to the biosolids (U.S. EPA, 1994). This GMP recommends that the Grower post signs and/or institute other measures such as fencing to restrict public access to the land application site.

Implementation: The Grower can implement public access restrictions himself or require the Applier to perform this function. *No Trespassing* signs in English and Spanish should be posted at all access points to the land application site. Typical access points where signs should be placed include roads, property lines, and pedestrian or bike paths. Along property lines, the signs should be placed at the corners and every 500 feet between the corners. Signs should be kept in place for at least 30 calendar days after the last application (Kern County, 1997). If the site is located in an area where there is a high potential for the public to contact the Class B biosolids and be exposed to the pathogens, the Grower might consider installing fencing along property lines and gates on access roads.

5. Ensure that only allowable crops are harvested after the application of Class B biosolids.

Purpose: Although, the intent of this document is not to provide guidance on the implementation of Part 503 (the U.S. EPA has published multiple guidance documents), several areas of the rule are vague and warrant further development as GMPs. One of these areas is compliance with the site restrictions for crop harvesting after the application of Class B biosolids.

Implementation of the crop harvesting site restrictions requires certain control over the land on which the biosolids are applied, such as deciding which crops will be planted and harvested over the next several years. This control and the extended length of time for which control is required necessitates Grower involvement in the land application project even though the Grower is not specifically identified as a responsible party with respect to Part 503 requirements.

Implementation: Certain crops are restricted from being harvested for a full 38 months following the application of Class B biosolids. The failure to monitor through the 38 month period is a real possibility, especially at sites where biosolids are no longer being applied. Therefore, the Grower must be aware of these site restrictions and agree to comply with the restrictions before biosolids are applied to the land. The Grower is encouraged to submit quarterly certifications of compliance for each field treated with biosolids for the full 38 months following each application. A standard certification form should be provided to the Grower by the Applier as discussed in Generator GMP-10 and Applier GMP-5. A certification example is provided in Appendix F. Any new leaseholders or landowners should be informed of past applications so that they can observe the waiting periods for crops already in the ground and make appropriate decisions regarding the planting of future crops.

References

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Rocky Mountain Water Environment Association Biosolids Committee (RMWEA). Undated B. "Fact Sheet: Public Access Restrictions."

U.S. EPA. 1994. "A Plain English Guide to the EPA Part 503 Biosolids Rule." EPA/832/R-93/003. Office of Wastewater Management. Washington, D.C.

APPENDIX A

40 CFR PART 503-STANDARDS FOR THE USE OR DISPOSAL OF SEWAGE SLUDGE

Subpart A-General Provisions

Subpart B-Land Application

Subpart D-Pathogens and Vector Attraction Reduction

Appendix A to Part 503-Procedure to Determine the Annual Whole Sludge Application Rate for a Sewage Sludge

Appendix B to Part 503-Pathogen Treatment Processes

Authority: Sections 405 (d) and (e) of the Clean Water Act, as amended by Pub. L. 95-217, Sec. 54(d), 91 Stat. 1591 (33 U.S.C. 1345 (d) and (e)); and Pub. L. 100-4, Title IV, Sec. 406 (a), (b), 101 Stat., 71, 72 (33 U.S.C. 1251 et seq.).

Subpart A-General Provisions

503.1 Purpose and applicability.

(a) Purpose.

(1) This part establishes standards, which consist of general requirements, pollutant limits, management practices, and operational standards, for the final use or disposal of sewage sludge generated during the treatment of domestic sewage in a treatment works. Standards are included in this part for sewage sludge applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. Also included in this part are pathogen and alternative vector attraction reduction requirements for sewage sludge applied to the land or placed on a surface disposal site.

(2) In addition, the standards in this part include the frequency of monitoring and recordkeeping requirements when sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. Also included in this part are reporting requirements for Class I sludge management facilities, publicly owned treatment works (POTWs) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve 10,000 people or more.

(b) Applicability.

(1) This part applies to any person who prepares sewage sludge, applies sewage sludge to the land, or fires sewage sludge in a sewage sludge incinerator and to the owner/operator of a surface disposal site.

(2) This part applies to sewage sludge applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator.

(3) This part applies to the exit gas from a sewage sludge incinerator stack.

(4) This part applies to land where sewage sludge is applied, to a surface disposal site, and to a sewage sludge incinerator.

503.2 Compliance period.

(a) Compliance with the standards in this part shall be achieved as expeditiously as practicable, but in no case later than February 19, 1994. When compliance with the standards requires construction of new pollution control facilities, compliance with the standards shall be achieved as expeditiously as practicable, but in no case later than February 19, 1995.

(b) The requirements for frequency of monitoring, recordkeeping, and reporting in this part for total hydrocarbons in the exit gas from a sewage sludge incinerator are effective February 19, 1994 or, if compliance with the operational standard for total hydrocarbons in this part requires the construction of new pollution control facilities, February 19, 1995.

(c) All other requirements for frequency of monitoring, recordkeeping, and reporting in this part are effective on July 20, 1993.

503.3 Permits and direct enforceability.

(a) Permits. The requirements in this part may be implemented through a permit:

(1) Issued to a "treatment works treating domestic sewage", as defined in 40 CFR 122.2, in accordance with 40 CFR parts 122 and 124 by EPA or by a State that has a State sludge management program approved by EPA in accordance with 40 CFR part 123 or 40 CFR part 501 or

(2) Issued under subtitle C of the Solid Waste Disposal Act; part C of the Safe Drinking Water Act; the Marine Protection, Research, and Sanctuaries Act of 1972; or the Clean Air Act. "Treatment works treating domestic sewage" shall submit a permit application in accordance with either 40 CFR 122.21 or an approved State program.

(b) Direct enforceability. No person shall use or dispose of sewage sludge through any practice for which requirements are established in this part except in accordance with such requirements.

503.4 Relationship to other regulations.

Disposal of sewage sludge in a municipal solid waste landfill unit, as defined in 40 CFR 258.2, that complies with the requirements in 40 CFR part 258 constitutes compliance with section 405(d) of the CWA. Any person who prepares sewage sludge that is disposed in a municipal solid waste landfill unit shall ensure that the sewage sludge meets the requirements in 40 CFR part 258 concerning the quality of materials disposed in a municipal solid waste landfill unit.

503.5 Additional or more stringent requirements.

(a) On a case-by-case basis, the permitting authority may impose requirements for the use or disposal of sewage sludge in addition to or more stringent than the requirements in this part when necessary to protect public health and the environment from any adverse effect of a pollutant in the sewage sludge.

(b) Nothing in this part precludes a State or political subdivision thereof or interstate agency from imposing requirements for the use or disposal of sewage sludge more stringent than the requirements in this part or from imposing additional requirements for the use or disposal of sewage sludge.

503.6 Exclusions.

(a) Treatment processes. This part does not establish requirements for processes used to treat domestic sewage or for processes used to treat sewage sludge prior to final use or disposal, except as provided in 503.32 and 503.33.

(b) Selection of a use or disposal practice. This part does not require the selection of a sewage sludge use or disposal practice. The determination of the manner in which sewage sludge is used or disposed is a local determination.

(c) Co-firing of sewage sludge. This part does not establish requirements for sewage sludge co-fired in an incinerator with other wastes or for the incinerator in which sewage sludge and other wastes are co-fired. Other wastes do not include auxiliary fuel, as defined in 40 CFR 503.41(b), fired in a sewage sludge incinerator.

(d) Sludge generated at an industrial facility. This part does not establish requirements for the use or disposal of sludge generated at an industrial facility during the treatment of industrial wastewater, including sewage sludge generated during the treatment of industrial wastewater combined with domestic sewage.

(e) Hazardous sewage sludge. This part does not establish requirements for the use or disposal of sewage sludge determined to be hazardous in accordance with 40 CFR part 261.

(f) Sewage sludge with high PCB concentration. This part does not establish requirements for the use or disposal of sewage sludge with a concentration of polychlorinated biphenyls (PCBs) equal to or greater than 50 milligrams per kilogram of total solids (dry weight basis).

(g) Incinerator ash. This part does not establish requirements for the use or disposal of ash generated during the firing of sewage sludge in a sewage sludge incinerator.

(h) Grit and screenings. This part does not establish requirements for the use or disposal of grit (e.g., sand, gravel, cinders, or other materials with a high specific gravity) or screenings (e.g., relatively large materials such as rags) generated during preliminary treatment of domestic sewage in a treatment works.

(i) Drinking water treatment sludge. This part does not establish requirements for the use or disposal of sludge generated during the treatment of either surface water or ground water used for drinking water.

(j) Commercial and industrial septage. This part does not establish requirements for the use or disposal of commercial septage, industrial septage, a mixture of domestic septage and commercial septage, or a mixture of domestic septage and industrial septage.

503.7 Requirement for a person who prepares sewage sludge.

Any person who prepares sewage sludge shall ensure that the applicable requirements in this part are met when the sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator.

503.8 Sampling and analysis.

(a) Sampling. Representative samples of sewage sludge that is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator shall be collected and analyzed.

(b) Methods. The materials listed below are incorporated by reference in this part. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The materials are incorporated as they exist on the date of approval, and notice of any change in these materials will be published in the Federal Register. They are available for inspection at the Office of the Federal Register, 7th Floor, suite 700, 800 North Capitol Street, NW., Washington, DC, and at the Office of Water Docket, room L-102, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC. Copies may be obtained from the standard producer or publisher listed in the regulation. Methods in the materials listed below shall be used to analyze samples of sewage sludge.

(1) Enteric viruses. ASTM Designation: D 4994-89, "Standard Practice for Recovery of Viruses From Wastewater Sludges", 1992 Annual Book of ASTM Standards: Section 11-Water and Environmental Technology, ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

(2) Fecal coliform. Part 9221 E. or Part 9222 D., "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005.

(3) Helminth ova. Yanko, W.A., "Occurrence of Pathogens in Distribution and Marketing Municipal Sludges", EPA 600/1-87-014, 1987. National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161 (PB 88-154273/AS).

(4) Inorganic pollutants. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW-846, Second Edition (1982) with Updates I (April 1984) and II (April 1985) and Third Edition (November 1986) with Revision I (December 1987). Second Edition and Updates I and II are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161 (PB-87-120-291). Third Edition and Revision I are available from Superintendent of Documents, Government Printing Office, 941 North Capitol Street, NE., Washington, DC 20002 (Document Number 955-001-00000-1).

(5) Salmonella sp. bacteria. Part 9260 D., "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005; or Kenner, B.A. and H.P. Clark, "Detection and enumeration of Salmonella and Pseudomonas aeruginosa", Journal of the Water Pollution Control Federation, Vol. 46, no. 9, September 1974, pp. 2163-2171. Water Environment Federation, 601 Wythe Street, Alexandria, Virginia 22314.

(6) Specific oxygen uptake rate. Part 2710 B., "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005.

(7) Total, fixed, and volatile solids. Part 2540 G., "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005.

503.9 General definitions.

(a) Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

(b) Base flood is a flood that has a one percent chance of occurring in any given year (i.e., a flood with a magnitude equalled once in 100 years).

(c) Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR 501.2, required to have an approved pretreatment program under 40 CFR 403.8(a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 CFR 403.10(e)) and any treatment works treating domestic sewage, as defined in 40 CFR 122.2, classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director, because of the potential for its sewage sludge use or disposal practice to affect public health and the environment adversely.

(d) Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

(e) CWA means the Clean Water Act (formerly referred to as either the Federal Water Pollution Act or the Federal Water Pollution Control Act Amendments of 1972), Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, Public Law 97-117, and Public Law 100-4.

(f) Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

(g) Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

(h) Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius until reaching a constant mass (i.e., essentially 100 percent solids content).

(i) EPA means the United States Environmental Protection Agency.

(j) Feed crops are crops produced primarily for consumption by animals.

(k) Fiber crops are crops such as flax and cotton.

(l) Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

(m) Ground water is water below the land surface in the saturated zone.

(n) Industrial wastewater is wastewater generated in a commercial or industrial process.

(o) Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under section 208 of the CWA, as amended. The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201(e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use, or disposal of sewage sludge.

(p) Permitting authority is either EPA or a State with an EPA-approved sludge management program.

(q) Person is an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

(r) Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

(s) Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

(t) Pollutant is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or a pathogenic organism 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.

(u) Pollutant limit is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of a pollutant that can be applied to a unit area of land (e.g., kilograms per hectare); or the volume of a material that can be applied to a unit area of land (e.g., gallons per acre).

(v) Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off of the land surface.

(w) Sewage sludge is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

(x) State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the

Northern Mariana Islands, and an Indian Tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.
(y) Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.
(z) Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.
(aa) Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.
(bb) Wetlands means those areas that are inundated or saturated by surface water or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Subpart B-Land Application
503.10 Applicability.
(a) This subpart applies to any person who prepares sewage sludge that is applied to the land, to any person who applies sewage sludge to the land, to sewage sludge applied to the land, and to the land on which sewage sludge is applied.
(b)(1) Bulk sewage sludge. The general requirements in 503.12 and the management practices in 503.14 do not apply when bulk sewage sludge is applied to the land if the bulk sewage sludge meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8).

(2) The Regional Administrator of EPA or, in the case of a State with an approved sludge management program, the State Director, may apply any or all of the general requirements in 503.12 and the management practices in 503.14 to the bulk sewage sludge in 503.10(b)(1) on a case-by-case basis after determining that the general requirements or management practices are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge.
(c)(1) The general requirements in 503.12 and the management practices in 503.14 do not apply when a bulk material derived from sewage sludge is applied to the land if the derived bulk material meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8).

(2) The Regional Administrator of EPA or, in the case of a State with an approved sludge management program, the State Director, may apply any or all of the general requirements in 503.12 or the management practices in 503.14 to the bulk material in 503.10(c)(1) on a case-by-case basis after determining that the general requirements or management practices are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge.
(d) The requirements in this subpart do not apply when a bulk material derived from sewage sludge is applied to the land if the sewage sludge from which the bulk material is derived meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8).
(e) Sewage sludge sold or given away in a bag or other container for application to the land. The general requirements in 503.12 and the management practices in 503.14 do not apply when sewage sludge is sold or given away in a bag or other container for application to the land if the sewage sludge sold or given away in a bag or other container for application to the land meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8).
(f) The general requirements in 503.12 and the management practices in 503.14 do not apply when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land if the derived material meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8).
(g) The requirements in this subpart do not apply when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land if the sewage sludge from which the material is derived meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8).

503.11 Special definitions.
(a) Agricultural land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.
(b) Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To 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.
(c) Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.
(d) Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.
(e) Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.
(f) Cumulative pollutant loading rate is the maximum amount of an inorganic pollutant that can be applied to an area of land.
(g) Forest is a tract of land thick with trees and underbrush.
(h) Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.
(i) Monthly average is the arithmetic mean of all measurements taken during the month.
(j) Other 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.
(k) Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.
(l) 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.
(m) Range land is open land with indigenous vegetation.
(n) Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

503.12 General requirements.
(a) No person shall apply sewage sludge to the land except in accordance with the requirements in this subpart.
(b) No person shall apply bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in 503.13(b)(2) has been reached.
(c) No person shall apply domestic septage to agricultural land, forest, or a reclamation site during a 365 day period if the annual application rate in 503.13(c) has been reached during that period.
(d) The person who prepares bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall provide the person who applies the bulk sewage sludge written notification of the concentration of total nitrogen (as N on a dry weight basis) in the bulk sewage sludge.
(e)(1) The person who applies sewage sludge to the land shall obtain information needed to comply with the requirements in this subpart.

(2)(i) Before bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) is applied to the land, the person who proposes to apply the bulk sewage sludge shall contact the permitting authority for the State in which the bulk sewage sludge will be applied to determine whether bulk sewage sludge subject to the cumulative pollutant loading rates
in 503.13(b)(2) has been applied to the site since July 20, 1993.

(ii) If bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has not been applied to the site since July 20, 1993, the cumulative amount for each pollutant listed in Table 2 of 503.13 may be applied to the site in accordance with 503.13(a)(2)(i).

(iii) If bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has been applied to the site since July 20, 1993, and the cumulative amount of each pollutant applied to the site in the bulk sewage sludge since that date is known, the

cumulative amount of each pollutant applied to the site shall be used to determine the additional amount of each pollutant that can be applied to the site in accordance with 503.13(a)(2)(i).

(iv) If bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has been applied to the site since July 20, 1993, and the cumulative amount of each pollutant applied to the site in the bulk sewage sludge since that date is not known, an additional amount of each pollutant shall not be applied to the site in accordance with 503.13(a)(2)(i).

(f) When a person who prepares bulk sewage sludge provides the bulk sewage sludge to a person who applies the bulk sewage sludge to the land, the person who prepares the bulk sewage sludge shall provide the person who applies the sewage sludge notice and necessary information to comply with the requirements in this subpart.

(g) When a person who prepares sewage sludge provides the sewage sludge to another person who prepares the sewage sludge, the person who provides the sewage sludge shall provide the person who receives the sewage sludge notice and necessary information to comply with the requirements in this subpart.

(h) The person who applies bulk sewage sludge to the land shall provide the owner or lease holder of the land on which the bulk sewage sludge is applied notice and necessary information to comply with the requirements in this subpart.

(i) Any person who prepares bulk sewage sludge that is applied to land in a State other than the State in which the bulk sewage sludge is prepared shall provide written notice, prior to the initial application of bulk sewage sludge to the land application site by the applier, to the permitting authority for the State in which the bulk sewage sludge is proposed to be applied. The notice shall include:

(1) The location, by either street address or latitude and longitude, of each land application site.

(2) The approximate time period bulk sewage sludge will be applied to the site.

(3) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who prepares the bulk sewage sludge.

(4) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk sewage sludge.

(j) Any person who applies bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) to the land shall provide written notice, prior to the initial application of bulk sewage sludge to a land application site by the applier, to the permitting authority for the State in which the bulk sewage sludge will be applied and the permitting authority shall retain and provide access to the notice. The notice shall include:

(1) The location, by either street address or latitude and longitude, of the land application site.

(2) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) of the person who will apply the bulk sewage sludge.

503.13 Pollutant limits.

(a) Sewage sludge.

(1) Bulk sewage sludge or sewage sludge sold or given away in a bag or other container shall not be applied to the land if the concentration of any pollutant in the sewage sludge exceeds the ceiling concentration for the pollutant in Table 1 of 503.13.

(2) If bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site, either:

(i) The cumulative loading rate for each pollutant shall not exceed the cumulative pollutant loading rate for the pollutant in Table 2 of 503.13; or

(ii) The concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 3 of 503.13.

(3) If bulk sewage sludge is applied to a lawn or a home garden, the concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 3 of 503.13.

(4) If sewage sludge is sold or given away in a bag or other container for application to the land, either:

(i) The concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 3 of 503.13; or

(ii) The product of the concentration of each pollutant in the sewage sludge and the annual whole sludge application rate for the sewage sludge shall not cause the annual pollutant loading rate for the pollutant in Table 4 of 503.13 to be exceeded. The procedure used to determine the annual whole sludge application rate is presented in appendix A of this part.

(b) Pollutant concentrations and loading rates-sewage sludge.

(1) Ceiling concentrations.

Table 1 of 503.13.-Ceiling Concentrations

Pollutant	Ceiling concentration (mg per kg)[1]
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

[1] Dry weight basis.

(2) Cumulative pollutant loading rates.

Table 2 of 503.13.-Cumulative Pollutant Loading Rates

Pollutant	Cumulative Pollutant Loading Rate (kg per ha)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	-
Nickel	420
Selenium	100
Zinc	2800

(3) Pollutant concentrations.

Table 3 of 503.13.-Pollutant Concentrations

Pollutant	Concentrations Pollutant (mg per kg)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	-
Nickel	420
Selenium	100
Zinc	2800

[1] Dry weight basis

(4) Annual pollutant loading rates.

Table 4 of 503.13.-Annual Pollutant Loading Rates

Pollutant	Annual Pollutant Loading Rate (kg per ha)
Arsenic	2.0
Cadmium	1.9
Copper	75
Lead	15
Mercury	0.85
Molybdenum	-
Nickel	21
Selenium	5.0
Zinc	140

503.14 Management practices.

(a) Bulk sewage sludge shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.

(b) Bulk sewage sludge shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters of the United States, as defined in 40 CFR 122.2, except as provided in a permit issued pursuant to section 402 or 404 of the CWA.

(c) Bulk sewage sludge shall not be applied to agricultural land, forest, or a reclamation site that is 10 meters or less from waters of the United States, as defined in 40 CFR 122.2, unless otherwise specified by the permitting authority.

(d) Bulk sewage sludge shall be applied to agricultural land, forest, a public contact site, or a reclamation site at a whole sludge application rate that is equal to or less than the agronomic rate for the bulk sewage sludge, unless, in the case of a reclamation site, otherwise specified by the permitting authority.

(e) Either a label shall be affixed to the bag or other container in which sewage sludge that is sold or given away for application to the land, or an information sheet shall be provided to the person who receives sewage sludge sold or given away in an other container for application to the land. The label or information sheet shall contain the following information:

(1) The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land.

(2) A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet.

(3) The annual whole sludge application rate

for the sewage sludge that does not cause any of the annual pollutant loading rates in Table 4 of 503.13 to be exceeded.

503.15 Operational standards-pathogens and vector attraction reduction.

(a) Pathogens-sewage sludge.

(1) The Class A pathogen requirements in 503.32(a) or the Class B pathogen requirements and site restrictions in 503.32(b) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.

(2) The Class A pathogen requirements in 503.32(a) shall be met when bulk sewage sludge is applied to a lawn or a home garden.

(3) The Class A pathogen requirements in 503.32(a) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.

(b) Pathogens-domestic septage.

The requirements in either 503.32 (c)(1) or (c)(2) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site.

(c) Vector attraction reduction-sewage sludge.

(1) One of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(10) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.

(2) One of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) shall be met when bulk sewage sludge is applied to a lawn or a home garden.

(3) One of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.

503.16 Frequency of monitoring.

(a) Sewage sludge.

(1) The frequency of monitoring for the pollutants listed in Table 1, Table 2, Table 3 and Table 4 of 503.13; the pathogen density requirements in 503.32(a) and in 503.32(b)(2) through (b)(4); and the vector attraction reduction requirements 503.33 (b)(1) through 503.33(b)(8) shall be the frequency in Table 1 of 503.16.

Table. 1 of 503.16.-Frequency of Monitoring-Land Application

Amount of sewage sludge[1] (metric tons per 365 days)	Frequency
≥0 but < 290	Once per year.
≥ 290 but < 1,500	Once per quarter (4 times / year).
≥ 1,500 but < 15,000	Once per 60 days (6 times / year).
≥15,000	Once per month (12 times /year).

[1]Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis).

(2) After the sewage sludge has been monitored for two years at the frequency in Table 1 of 503.16, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for the pathogen density requirements in 503.32 (a)(5)(ii) and (a)(5)(iii), but in no case shall the frequency of monitoring be less than once per year when sewage sludge is applied to the land.

(b) Domestic septage. If either the pathogen requirements in 503.32(c)(2) or the vector attraction reduction requirements in 503.33(b)(12) are met when domestic septage is applied to agricultural land, forest, or a reclamation site, each container of domestic septage applied to the land shall be monitored for compliance with those requirements.

(Approved by the Office of Management and Budget under control number 2040-0157)

503.17 Recordkeeping.

(a) Sewage sludge.

(1) The person who prepares the sewage sludge in 503.10(b)(1) or (e) shall develop the following information and shall retain the information for five years:

(i) The concentration of each pollutant listed in Table 3 of 503.13 in the sewage sludge.

(ii) The following certification statement:

"I certify, under penalty of law, that the Class A pathogen requirements in 503.32(a) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iii) A description of how the Class A pathogen requirements in 503.32(a) are met.

(iv) A description of how one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) is met.

(2) The person who derives the material in 503.10 (c)(1) or (f) shall develop the following information and shall retain the information for five years:

(i) The concentration of each pollutant listed in Table 3 of 503.13 in the material.

(ii) The following certification statement:

"I certify, under penalty of law, that the Class A pathogen requirements in 503.32(a) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iii) A description of how the Class A pathogen requirements in 503.32(a) are met.

(iv) A description of how one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) is met.

(3) If the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and the vector attraction reduction requirements in either 503.33 (b)(9) or (b)(10) are met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site:

(i) The person who prepares the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The concentration of each pollutant listed in Table 3 of 503.13 in the bulk sewage sludge.

(B) The following certification statement:

"I certify, under penalty of law, that the pathogen requirements in 503.32(a) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(C) A description of how the pathogen requirements in 503.32(a) are met.

(ii) The person who applies the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.14 and the vector attraction reduction requirement in [insert either 503.33 (b)(9) or (b)(10)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

(B) A description of how the management practices in 503.14 are met for each site on which bulk sewage sludge is applied.

(C) A description of how the vector attraction reduction requirements in either 503.33(b)(9) or (b)(10) are met for each site on which bulk sewage sludge is applied.

(4) If the pollutant concentrations in 503.13(b)(3) and the Class B pathogen requirements in 503.32(b) are met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site:

(i) The person who prepares the bulk sewage sludge shall develop the following information and shall retain the information for five years:

(A) The concentration of each pollutant listed in Table 3 of 503.13 in the bulk sewage sludge.

(B) The following certification statement:

"I certify under, penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and

evaluate the information used to determine that the pathogen requirements [and vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(C) A description of how the Class B pathogen requirements in 503.32(b) are met.

(D) When one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) is met, a description of how the vector attraction reduction requirement is met.

(ii) The person who applies the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.14, the site restrictions in 503.32(b)(5), and the vector attraction reduction requirements in [insert either 503.33 (b)(9) or (b)(10), if one of those requirements is met] have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and site restrictions [and the vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(B) A description of how the management practices in 503.14 are met for each site on which bulk sewage sludge is applied.

(C) A description of how the site restrictions in 503.32(b)(5) are met for each site on which bulk sewage sludge is applied.

(D) When the vector attraction reduction requirement in either 503.33 (b)(9) or (b)(10) is met, a description of how the vector attraction reduction requirement is met.

(5) If the requirements in 503.13(a)(2)(i) are met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site:

(i) The person who prepares the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The concentration of each pollutant listed in Table 1 of 503.13 in the bulk sewage sludge.

(B) The following certification statement:

"I certify, under penalty of law, that the pathogen requirements in [insert either 503.32(a) or 503.32(b)] and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements [and vector attraction reduction requirements] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(C) A description of how the pathogen requirements in either 503.32 (a) or (b) are met.

(D) When one of the vector attraction requirements in 503.33 (b)(1) through (b)(8) is met, a description of how the vector attraction requirement is met.

(ii) The person who applies the bulk sewage sludge shall develop the following information, retain the information in 503.17 (a)(5)(ii)(A) through (a)(5)(ii)(G) indefinitely, and retain the information in 503.17 (a)(5)(ii)(H) through (a)(5)(ii)(M) for five years.

(A) The location, by either street address or latitude and longitude, of each site on which bulk sewage sludge is applied.

(B) The number of hectares in each site on which bulk sewage sludge is applied.

(C) The date and time bulk sewage sludge is applied to each site.

(D) The cumulative amount of each pollutant (i.e., kilograms) listed in Table 2 of 503.13 in the bulk sewage sludge applied to each site, including the amount in 503.12(e)(2)(iii).

(E) The amount of sewage sludge (i.e., metric tons) applied to each site.

(F) The following certification statement:

"I certify, under penalty of law, that the requirements to obtain information in 503.12(e)(2) have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

(G) A description of how the requirements to obtain information in 503.12(e)(2) are met.

(H) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.14 have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

(I) A description of how the management practices in 503.14 are met for each site on which bulk sewage sludge is applied.

(J) The following certification statement when the bulk sewage sludge meets the Class B pathogen requirements in 503.32(b):

"I certify, under penalty of law, that the site restrictions in 503.32(b)(5) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the site restrictions have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

(K) A description of how the site restrictions in 503.32(b)(5) are met for each site on which Class B bulk sewage sludge is applied.

(L) The following certification statement when the vector attraction reduction requirement in either 503.33 (b)(9) or (b)(10) is met:

"I certify, under penalty of law, that the vector attraction reduction requirement in [insert either 503.33(b)(9) or 503.33(b)(10)] has been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the vector attraction reduction requirement has been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(M) If the vector attraction reduction requirements in either 503.33 (b)(9) or (b)(10) are met, a description of how the requirements are met.

(6) If the requirements in 503.13(a)(4)(ii) are met when sewage sludge is sold or given away in a bag or other container for application to the land, the person who prepares the sewage sludge that is sold or given away in a bag or other container shall develop the following information and shall retain the information for five years:

(i) The annual whole sludge application rate for the sewage sludge that does not cause the annual pollutant loading rates in Table 4 of 503.13 to be exceeded.

(ii) The concentration of each pollutant listed in Table 4 of 503.13 in the sewage sludge.

(iii) The following certification statement:

"I certify, under penalty of law, that the management practice in 503.14(e), the Class A pathogen requirement in 503.32(a), and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practice, pathogen requirements, and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iv) A description of how the Class A pathogen requirements in 503.32(a) are met.

(v) A description of how one of the vector attraction requirements in 503.33 (b)(1) through (b)(8) is met.

503.18 Reporting.

(a) Class I sludge management facilities, POTWs (as defined in 40 CFR 501.2) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve 10,000 people or more shall submit the following information to the permitting authority:

(1) The information in 503.17(a), except the information in 503.17 (a)(3)(ii), (a)(4)(ii) and in (a)(5)(ii), for the appropriate requirements on February 19 of each year.

(2) The information in 503.17 (a)(5)(ii)(A) through (a)(5)(ii)(G) on [insert the month and day from the date of publication of this rule] of each year when 90 percent or more of any of

the cumulative pollutant loading rates in Table 2 of 503.13 is reached at a site.

(Approved by the Office of Management and Budget under control number 2040-0157)

Subpart D-Pathogens and Vector Attraction Reduction

503.30 Scope.

(a) This subpart contains the requirements for a sewage sludge to be classified either Class A or Class B with respect to pathogens.

(b) This subpart contains the site restrictions for land on which a Class B sewage sludge is applied.

(c) This subpart contains the pathogen requirements for domestic septage applied to agricultural land, forest, or a reclamation site.

(d) This subpart contains alternative vector attraction reduction requirements for sewage sludge that is applied to the land or placed on a surface disposal site.

503.31 Special definitions.

(a) Aerobic digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

(b) Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

(c) Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

(d) Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (e.g, a construction site located in a city).

(e) Land with a low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

(f) Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

(g) pH means the logarithm of the reciprocal of the hydrogen ion concentration.

(h) Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the sewage sludge.

(i) Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

(j) Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

(k) Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitos, or other organisms capable of transporting infectious agents.

(l) Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

503.32 Pathogens.

(a) Sewage sludge-Class A.

(1) The requirement in 503.32(a)(2) and the requirements in either 503.32(a)(3), (a)(4), (a)(5), (a)(6), (a)(7), or (a)(8) shall be met for a sewage sludge to be classified Class A with respect to pathogens.

(2) The Class A pathogen requirements in 503.32 (a)(3) through (a)(8) shall be met either prior to meeting or at the same time the vector attraction reduction requirements in 503.33, except the vector attraction reduction requirements in 503.33 (b)(6) through (b)(8), are met.

(3) Class A-Alternative 1.

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10 (b), (c), (e), or (f).

(ii) The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time.

(A) When the percent solids of the sewage sludge is seven percent or higher, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 20 minutes or longer; and the temperature and time period shall be determined using equation (2), except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

$$D = 131{,}700{,}000/10^{(0.1400t)} \qquad \text{Eq. (2)}$$

Where,

D=time in days.

t=temperature in degrees Celsius.

(B) When the percent solids of the sewage sludge is seven percent or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 15 seconds or longer; and the temperature and time period shall be determined using equation (2).

(C) When the percent solids of the sewage sludge is less than seven percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using equation (2).

(D) When the percent solids of the sewage sludge is less than seven percent; the temperature of the sewage sludge is 50 degrees Celsius or higher; and the time period is 30 minutes or longer, the temperature and time period shall be determined using equation (3).

$$D = 50{,}070{,}000/10(0.1400t) \qquad \text{Eq. (3)}$$

Where,

D=time in days.

t=temperature in degrees Celsius.

(4) Class A-Alternative 2.

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10 (b), (c), (e), or (f).

(ii) (A) The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours.

(B) The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

(C) At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

(5) Class A-Alternative 3.

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10 (b), (c), (e), or (f).

(ii) (A) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses.

(B) When the density of enteric viruses in the sewage sludge prior to pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses until the next monitoring episode for the sewage sludge.

(C) When the density of enteric viruses in the sewage sludge prior to pathogen treatment is equal to or greater than one Plaque-forming Unit per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses when the density of enteric viruses in the sewage sludge after pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the enteric virus density requirement are documented.

(D) After the enteric virus reduction in paragraph (a)(5)(ii)(C) of this section is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to enteric viruses when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in paragraph (a)(5)(ii)(C) of this section.

(iii) (A) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains viable helminth ova.

(B) When the density of viable helminth ova in the sewage sludge prior to

pathogen treatment is less than one per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova until the next monitoring episode for the sewage sludge.

(C) When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is equal to or greater than one per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova when the density of viable helminth ova in the sewage sludge after pathogen treatment is less than one per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the viable helminth ova density requirement are documented.

(D) After the viable helminth ova reduction in paragraph (a)(5)(iii)(C) of this section is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to viable helminth ova when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in paragraph (a)(5)(iii)(C) of this section.

(6) Class A-Alternative 4.

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10 (b), (c), (e), or (f).

(ii) The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10 (b), (c), (e), or (f), unless otherwise specified by the permitting authority.

(iii) The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10 (b), (c), (e), or (f), unless otherwise specified by the permitting authority.

(7) Class A-Alternative 5.

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), (c), (e), or (f).

(ii) Sewage sludge that is used or disposed shall be treated in one of the Processes to Further Reduce Pathogens described in appendix B of this part.

(8) Class A-Alternative 6.

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), (c), (e), or (f).

(ii) Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens, as determined by the permitting authority.

(b) Sewage sludge-Class B.

(1)(i) The requirements in either 503.32(b)(2), (b)(3), or (b)(4) shall be met for a sewage sludge to be classified Class B with respect to pathogens.

(ii) The site restrictions in 503.32(b)(5) shall be met when sewage sludge that meets the Class B pathogen requirements in 503.32(b)(2), (b)(3), or (b)(4) is applied to the land.

(2) Class B-Alternative 1.

(i) Seven samples of the sewage sludge shall be collected at the time the sewage sludge is used or disposed.

(ii) The geometric mean of the density of fecal coliform in the samples collected in paragraph (b)(2)(i) of this section 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).

(3) Class B-Alternative 2. Sewage sludge that is used or disposed shall be treated in one of the Processes to Significantly Reduce Pathogens described in appendix B of this part.

(4) Class B-Alternative 3. Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Significantly Reduce Pathogens, as determined by the permitting authority.

(5) Site Restrictions.

(i) Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.

(ii) Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil.

(iii) 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.

(iv) Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge.

(v) Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.

(vi) Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

(vii) Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge.

(viii) Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.

503.33 Vector attraction reduction.

(a)(1) One of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(10) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.

(2) One of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) shall be met when bulk sewage sludge is applied to a lawn or a home garden.

(3) One of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(8) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.

(4) One of the vector attraction reduction requirements in 503.33 (b)(1) through (b)(11) shall be met when sewage sludge (other than domestic septage) is placed on an active sewage sludge unit.

(5) One of the vector attraction reduction requirements in 503.33 (b)(9), (b)(10), or (b)(12) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site and one of the vector attraction reduction requirements in 503.33 (b)(9) through (b)(12) shall be met when domestic septage is placed on an active sewage sludge unit.

(b)(1) The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent (see calculation procedures in "Environmental Regulations and Technology-Control of Pathogens and Vector Attraction in Sewage Sludge", EPA-625/R-92/013, 1992, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268).

(2) When the 38 percent volatile solids reduction requirement in 503.33(b)(1) cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. When at the end of the 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.

(3) When the 38 percent volatile solids reduction requirement in 503.33(b)(1) cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically

in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.

(4) The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

(5) Sewage sludge 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.

(6) The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

(7) The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials.

(8) The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

(9)(i) Sewage sludge shall be injected below the surface of the land.

(ii) No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

(iii) When the sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

(10)(i) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

(ii) When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

(11) Sewage sludge placed on an active sewage sludge unit shall be covered with soil or other material at the end of each operating day.

(12) The pH of domestic septage shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 minutes.

Appendix A to Part 503-Procedure to Determine the Annual Whole Sludge Application Rate for a Sewage Sludge

Section 503.13(a)(4)(ii) requires that the product of the concentration for each pollutant listed in Table 4 of 503.13 in sewage sludge sold or given away in a bag or other container for application to the land and the annual whole sludge application rate (AWSAR) for the sewage sludge not cause the annual pollutant loading rate for the pollutant in Table 4 of 503.13 to be exceeded. This appendix contains the procedure used to determine the AWSAR for a sewage sludge that does not cause the annual pollutant loading rates in Table 4 of 503.13 to be exceeded. The relationship between the annual pollutant loading rate (APLR) for a pollutant and the annual whole sludge application rate (AWSAR) for 1a sewage sludge is shown in equation (1).

$$APLR = C * AWSAR * 0.001 \quad (1)$$

Where:

APLR = Annual pollutant loading rate in kilograms per hectare per 365 day 365 day period.

C = Pollutant concentration in milligrams, per kilogram of total solids (dry weight basis).

AWSAR = Annual whole sludge application rate in metric tons per hectare per 365 day period (dry weight basis).

0.001 = A conversion factor.

To determine the AWSAR, equation (1) is rearranged into equation (2):

$$AWSAR = APLR/(C \times 0.001) \quad (2)$$

The procedure used to determine the AWSAR for a sewage sludge is presented below.

Procedure:

1. Analyze a sample of the sewage sludge to determine the concentration for each of the pollutants listed in Table 4 of 503.13 in the sewage sludge.

2. Using the pollutant concentrations from Step 1 and the APLRs from Table 4 of 503.13, calculate an AWSAR for each pollutant using equation (2) above.

3. The AWSAR for the sewage sludge is the lowest AWSAR calculated in Step 2.

Appendix B to Part 503-Pathogen Treatment Processes

A. Processes to Significantly Reduce Pathogens (PSRP)

1. Aerobic digestion-Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

2. Air drying-Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

3. Anaerobic digestion-Sewage sludge is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

4. Composting-Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40 degrees Celsius or higher and remains at 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

5. Lime stabilization-Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact.

B. Processes to Further Reduce Pathogens (PFRP)

1. Composting-Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for three days. Using the windrow composting method, the temperature of the sewage sludge is maintained at 55 degrees or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees or higher, there shall be a minimum of five turnings of the windrow.

2. Heat drying-Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10 percent or lower. Either the temperature of the sewage sludge particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the sewage sludge as the sewage sludge leaves the dryer exceeds 80 degrees Celsius.

3. Heat treatment-Liquid sewage sludge is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

4. Thermophilic aerobic digestion-Liquid sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the sewage sludge is 10 days at 55 to 60 degrees Celsius.

5. Beta ray irradiation-Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 degrees Celsius).

6. Gamma ray irradiation-Sewage sludge is irradiated with gamma rays from certain isotopes, such as Cobalt 60 and Cesium 137, at room temperature (ca. 20 degrees Celsius).

7. Pasteurization-The temperature of the sewage sludge is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

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40 CFR PART 503
U.S. EPA GUIDANCE DOCUMENTS[1]

"Guide to the Biosolids Risk Assessment."
Office of Wastewater Management. EPA 832-B-93-005. September, 1995.

"Land Application of Sewage Sludge: A Guide for Land Appliers on the Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503."
Office of Enforcement and Compliance Assurance. EPA/831-B-93-002b. December, 1994.

"OW Methods and Guidance Diskette #1."
Office of Water. EPA-821-C-97-003. April, 1997. (available on diskette)

"Part 503 Implementation Guidance."
Office of Water. EPA/833/R-95/001. October, 1995.

"A Plain English Guide to the EPA Part 503 Biosolids Rule."
Office of Wastewater Management. EPA/832/R-93/003. September, 1994.

"POTW Sludge Sampling and Analysis Guidance Document."
Permits Division. August, 1989.

"Preparing Sewage Sludge for Land Application or Surface Disposal: A Guide for Preparers of Sewage Sludge on the Monitoring Record Keeping, and Reporting Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503."
Office of Water. EPA/831B-93-002a. August, 1993.

"Process Design Manual - Land Application of Sewage Sludge and Domestic Septage."
Center for Environmental Research Information, National Risk Management Research Laboratory
EPA/625/R-95/001. September, 1995.

"Trace Metals Guidance."
Office of Water. EPA-821-C-97-002. April, 1997. (available on diskette).

[1] For information on how to obtain any of the above documents, contact Lauren Fondahl, U.S. EPA Region 9 Biosolids Coordinator at (415)744-1909

APPENDIX B

Table 2-1
PART 503 REGULATORY REQUIREMENTS CHECKLIST
GENERATOR

	CITATION		✓
1.	503.6(e), (f)	Establish that biosolids are not hazardous.	
2.	503.7	Comply with all federal biosolids land application requirements.	
3.	503.8(a), (b)	Collect and analyze representative samples using approved analytical methods.	
4.	503.12(d)	Analyze biosolids for total nitrogen and supply information to the Applier.	
5.	503.12(f), (g)	Prepare and supply notice and necessary information to the Applier and subsequent processors.	
6.	503.12(f), 503.17	Analyze biosolids for the regulated pollutants and provide information to the Applier.	
7.	503.12(l)	Prepare and supply to the permitting authority a notice of interstate transport, if applicable.	
8.	503.14(e)	Prepare and supply labels or instructions if biosolids are sold or given away in a bag or other container for application to land.	
9.	503.15(a), 503.32	Meet Class A or Class B pathogen reduction requirements.	
10.	503.15(c), 503.33	Meet vector attraction reduction requirements, if applicable.	
11.	503.16	Monitor regulated parameters at a frequency consistent with Table 1 of 503.16.	
12.	503.17(a)	Maintain records of pollutant concentrations, pathogen reduction, vector attraction reduction, and certification of achieving Part 503 compliance for five years.	
13.	503.18	Prepare and supply annual reports to the permitting authority.	

Comments: _____

Table 2-2
GOOD MANAGEMENT PRACTICES CHECKLIST
GENERATOR

	PROGRAM MANAGEMENT	✓
1.	Develop a Biosolids Management Plan.	
2.	Properly train employees to implement Biosolids Management Plan and related programs.	
3.	Routinely communicate with appropriate regulatory authorities.	
4.	Hire only qualified Transporters and Appliers.	
5.	Develop a Biosolids Fact Sheet.	
6.	Use a contract to define relationship with Transporter/Applier/Grower.	
7.	Inspect the transportation routes and application site monthly.	
8.	Keep complete records of all application activities.	
9.	Verify compliance of Transporter, Applier and Grower with regulatory requirements and GMP check list.	
10.	Verify compliance with crop harvesting site restrictions.	
	OPERATIONS	✓
11.	Minimize the amount of inert and foreign material in biosolids that are land applied.	
12.	Adequately stabilize the biosolids to minimize odors.	
13.	Produce biosolids of sufficient moisture content to minimize offsite dust generation.	
14.	Minimize the concentrations of pollutants in biosolids.	
15.	Notify Applier of any release of biosolids of unsuitable quality.	

Comments: _____

Table 3-1

GOOD MANAGEMENT PRACTICES CHECKLIST
TRANSPORTER

	PROGRAM MANAGEMENT	✓
1.	Prepare a written Transportation Management Plan.	
2.	Hire and train qualified drivers.	
3.	Maintain vehicles and trailers in a safe operating condition.	
	OPERATIONS	✓
4.	Operate vehicle safely and drive courteously at all times.	
5.	Follow proper loading, tarping, and sealing procedures.	
6.	Minimize nuisance potential during transport.	
7.	Keep ignition sources away from/do not physically enter tarped trailer loads of biosolids.	
8.	Carry proper biosolids documentation at all times.	
9.	Clean biosolids and mud from vehicle before entering public roads.	
10.	Unload biosolids only in designated areas at land application sites.	
11.	Practice appropriate health safeguards	

Comments: _____

Table 4-1

PART 503 REGULATORY REQUIREMENTS CHECKLIST
APPLIER

	CITATION		✓
1.	503.12(a)	Apply biosolids in accordance with all applicable federal requirements.	
2.	503.12(b)	Do not exceed any of the cumulative pollutant loading rates, Table 2 of 503.13, at a land application site.	
3.	503.12(e)(1)	Obtain necessary information on biosolids quality from the Generator.	
4.	503.12(e)(2)(i), (ii), (iii)	Contact federal and/or state permitting authority regarding whether bulk biosolids subject to 503.13, Table 2 CPLRs were applied to the site since July 20, 1993. If bulk CPLR biosolids were not applied to the site since July 20, 1993, the cumulative amount of each Table 2 pollutant may be applied to the site. If bulk CPLR biosolids have been applied to the site since July 20, 1993, the cumulative amount of each pollutant previously applied to the site is used to determine the additional amount of pollutant that can be applied to the site in accordance with Table 2.	
5.	503.12(e)(2)(iv)	Do not apply biosolids to a site if CPLR biosolids have been applied to the site since July 20, 1993 and the cumulative amount of each pollutant applied is not known.	
6.	503.12(h)	Provide notice and necessary information to comply with applicable Part 503 requirements to the owner/leaseholder of the land on which the bulk biosolids are applied.	
7.	503.12(j)	Provide written notice to U.S. EPA and the state permitting authority prior to the land application of bulk CPLR biosolids.	
8.	503.14(a)	Protect threatened or endangered species or their designated critical habitat.	
9.	503.14(b)	Protect surface waters and wetlands.	
10.	503.14(c)	Do not apply biosolids within 10 meters of any waters of the United States.	
11.	503.14(d)	Apply bulk non-EQ biosolids at an application rate equal to or less than the agronomic rate for the crop or vegetation.	
12.	503.15	Meet the pathogen reduction and vector attraction reduction requirements when bulk biosolids are applied to the land.	
13.	503.17(a)(3), (4)(ii), (5)(ii)	Maintain certain records of data collected indefinitely and certain records for 5-years for CPLR biosolids.	
14.	503.17(a)(5)(ii)	Prepare and supply annual reports to the permitting authority for each year when 90% or more of any cumulative pollutant loading rate is reached for the site.	
15.	503.32(b)(1)(ii), (b)(5)	Meet various site restrictions when the pathogen reduction level is Class B.	
16.	503.33(b)(9), (b)(10)	If vector attraction reduction requirements are not met prior to land application, comply with Options 9 or 10.	

Comments: _____

Table 4-2
GOOD MANAGEMENT PRACTICES CHECKLIST
APPLIER

	PROGRAM MANAGEMENT	✓
1.	Train employees to properly administer the land application program.	
2.	Provide a knowledgeable spokesperson to handle public relations.	
3.	Prepare a written Site Management Plan.	
4.	Maintain accurate and well organized records.	
5.	Prepare and distribute routine Operations Status Reports.	
6.	Promptly notify the stakeholders about regulatory violations and other incidents.	
	OPERATIONS	✓
7.	Implement a Nutrient Management Plan.	
8.	Adequately size buffer zones.	
9.	Maintain a minimum depth to potable groundwater of 10 feet.	
10.	Incorporate biosolids applied to tilled fields as soon as possible after application.	
11.	Clean all vehicles and equipment prior to entering public roads.	
12.	Minimize soil compaction.	
13.	Properly manage staging and storage areas.	
14.	Restrict public access by posting *No Trespassing* signs or instituting other measures.	
15.	Minimize dust emissions during biosolids applications.	
16.	Minimize ponding of liquid biosolids on soil surfaces when using subsurface injection.	
17.	Verify regulatory requirements and GMP checklist compliance by Generator, Transporter, and Grower.	
18.	Clearly identify site access routes and staging areas.	
19.	Practice appropriate health safeguards.	

Comments: _____

Table 5-1

PART 503 REGULATORY REQUIREMENTS CHECKLIST
GROWER

	CITATION		✓
1.	503.32(b)(5)(i)	Do not harvest food crops for 14 months after application of Class B biosolids when the crop's harvested part touches the biosolids-amended soil and the harvested part is totally above the land surface. Food crops are crops consumed by humans and include, but are not limited to, fruits, vegetables, and tobacco. Examples of these crops are melons, strawberries, eggplant, squash, tomatoes, cucumbers, celery, cabbage, and lettuce (U.S. EPA, 1994).	
2.	503.32(b)(5)(ii)	Do not harvest food crops for 20 months after application of Class B biosolids when the crop's harvested part is below the surface of the biosolids-amended soil and the biosolids remain on the land surface for four months or longer prior to incorporation into the soil. Examples of these crops are potatoes, yams, sweet potatoes, rutabaga, peanuts, onions, leeks, radishes, turnips, and beets (U.S. EPA, 1994).	
3.	503.32(b)(5)(iii)	Do not harvest food crops for 38 months after application of Class B biosolids when the crop's harvested part is below the surface of the biosolids-amended soil and the biosolids remain on the land surface for less than four months prior to incorporation into the soil.	
4.	503.32(b)(5)(iv)	Do not harvest food, feed, or fiber crops for 30 days after application of Class B biosolids. Feed crops are those produced primarily for consumption by animals. Fiber crops include crops such as flax or cotton.	
5.	503.32(b)(5)(v)	Do not allow animal grazing for 30 days after application of Class B biosolids. This requirement has been interpreted to apply to grazing of domestic herds and not deer and other wild animals.	
6.	503.32(b)(5)(vi)	Do not harvest turf for 12 months after application of Class B biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.	
7.	503.32(b)(5)(vii)	Restrict public access for 12 months after application of Class B biosolids when the land has a high potential for public exposure. Land with a high potential for public exposure is that which the public uses frequently. This includes a public contact site (e.g. parks, playgrounds, or golf courses) and a reclamation site located in a populated area (e.g. a construction site located in a city).	
8.	503.32(b)(5)(viii)	Restrict public access for 30 days after application of Class B biosolids when the land has a low potential for public exposure. Land with a low potential for public exposure is that which the public uses infrequently. This includes, but is not limited to, agricultural land (e.g., farmland in rural areas, securely fenced areas, or remote land), forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).	

Comments: _____

Table 5-2
GOOD MANAGEMENT PRACTICES CHECKLIST
GROWER

		✓
	PROGRAM MANAGEMENT	
1.	Develop and maintain a basic knowledge of biosolids characteristics.	
2.	Exercise proper oversight of Applier's activities.	
	OPERATIONS	
3.	Cooperate with Applier in development and implementation of a Nitrogen Management Plan.	
4.	Restrict public access by posting *No Trespassing* signs or instituting other measures.	
5.	Ensure that only allowable crops are harvested after the application of Class B biosolids.	

Comments: _____

APPENDIX C

SAMPLE FORMAT
FOR PROVIDING NOTICE AND NECESSARY INFORMATION TO APPLIER

[This form is intended to assist the Generator with bulk biosolids notification requirements in 503.12(f).]

A. POLLUTANT CONCENTRATIONS (Highlight results that exceed associated limit)

Pollutant	Concentration (mg/kg dry weight) ❑ monthly average ❑ instantaneous value	Part 503 Table 3 Pollutant Concentration (mg/kg dry weight) monthly average	Part 503 Table 1* Ceiling Concentration (mg/kg dry weight) instantaneous maximum
Arsenic		41	75
Cadmium		39	85
Copper		1,500	4,300
Lead		300	840
Mercury		17	57
Molybdenum		NA	75
Nickel		420	420
Selenium		100	100
Zinc		2,800	7,500
Organic-N		NA	NA
Ammonia-N		NA	NA
Nitrate-N		NA	NA
Nitrite-N		NA	NA

* Biosolids cannot be land applied if any pollutant concentrations in any sample exceed these values.

B. PATHOGEN REDUCTION (Indicate level achieved and alternative used to achieve that level; attach applicable supporting data.)

❑ Class A Alternative _____ ❑ Class B Alternative _____

C. VECTOR ATTRACTION REDUCTION (Indicate option performed; attach applicable supporting data.)

❑ Option 1 ❑ Option 2 ❑ Option 3 ❑ Option 4

❑ Option 5 ❑ Option 6 ❑ Option 7 ❑ Option 8

❑ No Vector Attraction Reduction Options were performed

D. CERTIFICATION

"I certify under penalty of law that the pathogen reduction requirements and the vector attraction reduction requirements have been met as shown in B and C above. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen reduction requirements and the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

_____ _____

Name and Official Title (type or print) Area Code and Telephone Number

_____ _____

Signature Date Signed

Modified Form - U.S. EPA, 1993

FIELD _____ COMPLIANCE SUMMARY[1]
APPLICATION PERIOD _____

Field Information

Location: T_____ R _____ S _____
County/Crossroads: _____
Size: _____ Acres _____ Hectares
Area Applied: _____ Acres _____ Hectares (attach map if different from above)
Applier: _____

Applications Summary

	Wet Tons	Dry Tons	Dry Metric Tons
Total for application period			
Per acre/per hectare			
Lifetime[2]			

Crop Information

Crop _____ Plant Date _____ Harvest Date _____ Market _____
Crop Nitrogen Requirement (lbs N/acre) _____
Biosolids Target Rate[3] (lbs N/acre) _____
Actual Biosolids N loading (lbs N/acre) _____
Year 2 Crop _____ Harvest Date _____ Market _____
Year 3 Crop _____ Harvest Date _____ Market _____
Year 4 Crop _____ Harvest Date _____ Market _____

Cumulative Pollutant Loadings

Do any CPLRs exceed 90% of Limits? ❑ Yes ❑ No
If yes, list pollutants and CPLR. _____
If yes, was permitting agency notified? ❑ Yes ❑ No Date of notification _____

Site Restrictions

Type of Access Restriction _____
Was the field grazed? ❑ Yes ❑ No If yes, list dates. _____

Certification

Is certification on file? If no, explain. _____

Comments

_____
_____
_____
_____
_____
_____

[1] Form to be completed by Generator for each field application; Supporting information is available in Operations Status Reports.
[2] Since 7/20/93 or earlier if it is known that CPLR biosolids were applied prior to 7/20/93.
[3] Net allowable nitrogen from biosolids.

APPENDIX D

BIOSOLIDS FACT SHEET

(*Generator/Facility name here*)

Description

Biosolids (formerly referred to as sewage sludge) are reusable solids from the wastewater treatment process. At (*treatment plant name here*), biosolids have been treated by (*process type here, e.g., anaerobic digestion*) and dewatered by (*process type here, e.g., filter presses*). The dewatered, semi-solid form is referred to as cake.

Biosolids are not a hazardous material. The biosolids cake produced at (*treatment plant name here*) is primarily organic. It is beneficially reused as a soil amendment on agricultural land (land application), (*other uses here, e.g., compost*). Routine analyses demonstrate that (*quality/allowable use here, e.g., metals concentrations meet EPA standards which allow the material to be land applied at unrestricted metals loading rates*).

(*Further information here, e.g., Anaerobic digestion significantly reduces, but does not completely eliminate, pathogens (disease causing microorganisms). Digesters, which are operated at specific time and temperature parameters, produce EPA Class B biosolids. Class B quality is suitable for application to agricultural land in concert with certain EPA site restrictions.*)

Typical Characterization

Appearance	Black, semi-solid
Total Solids Content	xx % (yy % moisture)
Free Liquid	None
pH	x
Nitrogen	x % (dry weight basis)
Phosphate	x % (dry weight basis)
Potassium	x % (dry weight basis)
Metals Content	e.g., Meets EPA Table 3
Pathogen Reduction	e.g., Meets EPA Class B
Soluble Metals	e.g., Non-hazardous per California Title 22 STLC and TTLC

Handling Practices[1]

Biosolids are treated to reduce pathogens. Nonetheless, there is the potential for exposure to pathogenic microorganisms. Major routes of infection are ingestion, inhalation and direct contact. Good, common sense, personal hygiene and work habits provide adequate protection for workers handling biosolids.

Always wash hands after contact with biosolids. Additional recommendations include:

[1]Much of the information contained herein was taken from Biological Hazards at Wastewater Treatment Facilities, Water Environment Federation (formerly, Water Pollution Control Federation), 1991.

BIOSOLIDS FACT SHEET

(*Generator/Facility name here*)

- Never eat, drink or smoke before washing hands.
- Avoid touching face, mouth, eyes, nose, or genitalia before washing hands.
- Eat in designated areas away from biosolids handling activities.
- Do not smoke or chew tobacco or gum while working in direct contact with biosolids.
- Use gloves, when applicable.
- Keep wounds covered with clean, dry bandages.
- Change into clean work clothing on a daily basis.

If contact occurs, wash contact area thoroughly with soap and water. Use antiseptic solutions on wounds, and bandage with a clean, dry dressing. For contact with eyes, flush thoroughly but gently.

The Centers for Disease Control recommends that immunizations for diphtheria and tetanus be current for the general public which includes all wastewater workers. Boosters are recommended every ten years. The tetanus booster should be repeated in the case of a wound that becomes dirty if the previous booster is over five years old. Consult a doctor regarding direct exposure to an open wound or mouth.

Hazard Potential

Biosolids are not combustible under ordinary circumstances. If stored in airtight containers for an extended period, methane gas may be produced which could ignite in the presence of a spark or open flame. Extinguish with dry chemical, water spray or foam. Avoid use of open flames in confined areas and around sealed transport containers. Vent confined areas and transport containers if biosolids have been stored for any significant length of time.

Hydrogen sulfide may also be generated in sufficient quantities to be a hazard in enclosed areas such as tarped transport containers. Hydrogen sulfide gas, which smells like rotten eggs, can be toxic. Exposure can be avoided by removing the container tarp prior to unloading, and discharging as much material as possible prior to employees entering the container.

Generator Data

Generator Name
Address
City, State, Zip Code
Area Code & Phone Number
Contact

Facility Name (if different)
Address
City, State, Zip Code
Area Code & Phone Number
Contact

APPENDIX E

(*Generator Name Here*)

BIOSOLIDS MANAGEMENT PROGRAM
SITE INSPECTION REPORT

Land Applier:_____ On-Site Rep.:_____ Title:_____

Address:_____ City:_____ State:_____ Zip Code:_____

Telephone Number:_____ Fax Number:_____

Date of this Inspection:_____ Time In:_____ Time Out:_____

Inspecting Agency:_____ Agency Rep. Name:_____

Was this inspection an ... Announced Inspection? ❑ Unannounced Inspection? ❑

Date of Last Inspection:_____

Current Weather Conditions:_____

Temperature:_____ Wind Speed:_____ Wind Direction:_____

Inspection Summary			
General Site Conditions		Review of Truck Documents	
Facilities & Equipment Housekeeping		Biosolids Delivery Travel Inspection	
Quantity of On-Site Inventory		Operational Changes Noted	

Legend:
A Acceptable
B Needs Improvement
C Corrective Action Required Immediately
NR Not Reviewed
NA Not Applicable

GENERAL SITE CONDITIONS	
ITEM	**COMMENTS**
Odors:	
Vectors:	
Dust:	
Runoff:	
Spills:	

FACILITY & EQUIPMENT HOUSEKEEPING	
ITEM	**COMMENTS**
Public Access Control	
Field Condition	
Staging & Storage Areas	
Incorporation	
Truck Washing Area	
Buffer Maintenance: Property Lines (50') Surface Waters (33') Domestic Wells (500') Non-Domestic Wells (50') Occupied Bldgs (500') Public Roads (50') (Replace GMP distances with permit required buffers if the latter is more restrictive)	
On-Site Roads	
Ponding / Runoff Control	
Wildlife / Livestock Activity in Area	
Other Observations	

Quantity of On-Site Inventory

Quantity of Biosolids Staged / Stored: _____

Facilities of Origin: _____

Application Rate Calculations

Truckload or Spreader Payload = _____ wet tons

1 Truckload or Spreader Covers _____ (no. of rows or passes)

Width of Row or Pass = _____ feet

Length of Row or Pass = _____ feet

# of Rows/Passes	x	Width	x	Length		
_____	x	_____	x	_____	=	_____ ft^2

ft^2	x	2.296×10^{-5} acres/ft^2		
_____	x	2.296×10^{-5}	=	_____ acres

wet tons	÷	acres		
_____		_____	=	_____ wt/acre

Operational Changes Noted

Any operational changes observed? _____

_____

_____

_____

Did the contractor notify the agencies? ❑ No ❑ Yes, date notified:

Are the changes temporary or permanent? _____

List the reason(s) for making the changes: _____

_____

Comments

_____

_____

_____

Inspection of Random Truck Documents

Drivers License Information: Name: _____ License No.: _____

Expiration Date: _____ Medical Expiration Date: _____

Log Book Current? ❑ Yes ❑ No

Emergency Equipment on Board ? ❑ Yes ❑ No

Spill Plan On Board? ❑ Yes ❑ No

Driver Knowledgeable of Spill Plan? ❑ Yes ❑ No

Tarps Used Correctly? ❑ Yes ❑ No

Any Leakage from Trailer? ❑ Yes ❑ No

TRACTOR:
License No.: _____ Safety Certificates: _____ CVSA No.Color: _____

TRAILER:
License No.: _____ Safety Certificates: _____ CVSA No.Color: _____

Weight Tickets Current? ❑ Yes ❑ No

This vehicle delivered biosolids from the following facility(s): _____

_____

Transportation Route Inspection

Time of Departure from Generating Facility? _____ AM / PM Date: _____

Were the truck and trailer clean, sealed, and tarped? ❑ Yes ❑ No If No, explain: _____

_____

Did the driver follow the prescribed route? ❑ Yes ❑ No If No, explain: _____

_____

Time of Arrival at Land Application Site: _____ AM / PM Date: _____

Any stopovers made during transit? ❑ Yes ❑ No If Yes, where and for how long? _____

_____

Other Comments

_____

_____

_____

APPENDIX F

(*Applier Name Here*)

CROP HARVESTING SITE RESTRICTIONS
QUARTERLY GROWER CERTIFICATION

Farm Name: _____ Total Acres: _____
Farm Location (include County): _____
Crossroads: _____
T / R / S, Latitude/ Longitude: _____

Owner: _____
Leaseholder (if different from above): _____
Dates of Application: _____

I understand the following regulatory requirements and consented to comply with these regulations prior to receiving any biosolids:

(a) 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 of biosolids.

(b) Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.

(c) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.

(d) Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.

(e) Turf grown on land where biosolids are applied shall not be harvested for one year after application of the biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

I certify that I am responsible for the agricultural operations on the above described property and that the above requirements were met for the Quarter _____ to _____ ,199 ____

_____ _____
GROWER SIGNATURE DATE

_____ _____
Receipt of Completed Form Acknowledged by Applier Date

Modified Form - Wheelebrator, Bio Gro Systems

(*Applier Name Here*)

LANDOWNER CONSENT FOR BIOSOLIDS APPLICATION

The undersigned hereby agrees to the application of biosolids by (*Applier Name here*) at agronomic rates, for agricultural purposes, in accordance with all applicable laws and regulations.

Landowner Name: _____
Address: _____
City/State/Zip Code: _____
Telephone Number: _____

Farm Name: _____ Total Acres: _____
Farm Location (include County): _____
Crossroads: _____
T / R / S, Latitude/ Longitude: _____

Leaseholder: _____

I understand and agree to the following regulatory requirements:

(a) 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 of biosolids.

(b) Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.

(c) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.

(d) Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.

(e) Animals shall not be allowed to graze on the land for 30 days after application of biosolids.

(f) Turf grown on land where biosolids are applied shall not be harvested for one year after application of the biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

(g) Public access to land with a high potential for public exposure shall be restricted for one year after application of biosolids.

(h) Public access to land with a low potential for public exposure shall be restricted for 30 days after application of biosolids.

I agree to allow Generators of the biosolids being applied and all federal, state, regional, and local regulatory staff access to this land for inspection and sample collection purposes.

I certify that I am the holder of legal title to the above described property or am authorized by the holder to give consent for the land application of biosolids.

I agree to notify (*Applier name here*) immediately in the event of the sale of this property and provide them with the name, address and telephone number of the future owner.

I agree to notify (*Applier name here*) immediately in the event of a change in Leaseholder and provide them with the name, address and telephone number of the new leaseholder.

_____ _____
LAND OWNER SIGNATURE (Include title if signing as a representative) DATE

_____ _____
Receipt of Completed Form Acknowledged by Applier Date

Modified Form - Wheelebrator, Bio Gro Systems

(*Applier Name Here*)

LEASEHOLDER CONSENT FOR BIOSOLIDS APPLICATION

The undersigned hereby agrees to the application of biosolids by (*Applier Name here*) at agronomic rates, for agricultural purposes, in accordance with all applicable laws and regulations.

Leaseholder Name: _____
Address: _____
City/State/Zip Code: _____
Telephone Number: _____
Farm Name: _____ Total Acres: _____
Farm Location (include County): _____
Crossroads: _____
T / R / S, Latitude/ Longitude: _____

Farm Owner: _____

I understand and agree to the following regulatory requirements:

(a) 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 of biosolids.

(b) Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.

(c) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.

(d) Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.

(e) Animals shall not be allowed to graze on the land for 30 days after application of biosolids.

(f) Turf grown on land where biosolids are applied shall not be harvested for one year after application of the biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

(g) Public access to land with a high potential for public exposure shall be restricted for one year after application of biosolids.

(h) Public access to land with a low potential for public exposure shall be restricted for 30 days after application of biosolids.

I agree to allow Generators of the biosolids being applied and all federal, state, regional, and local regulatory staff access to this land for inspection and sample collection purposes.

I certify that I am the leaseholder of and am responsible for the agricultural operations on the above described property.

_____ _____
LEASEHOLDER DATE

_____ _____
Receipt of Completed Form Acknowledged by Applier Date

Modified Form - Wheelebrator, Bio Gro Systems

APPENDIX G

BIOSOLIDS HAULER SPILL RESPONSE PROCEDURE

1. General

A. **Biosolids are non-hazardous and non-toxic.** If a spill occurs, there is no need for special equipment or emergency protocol beyond that outlined in this procedure. Biosolids are primarily processed solids produced by sewage treatment plants.

B. Biosolids spilled onto pavement pose a potential road hazard because they can create wet, slick surfaces for motor vehicles, and/or can obstruct traffic flow. If biosolids remain on the surface for a sufficient time, they could be a source of potential contamination of nearby storm drains, waterways, or ground water. Biosolids should be thoroughly removed so that no significant residues remain to be washed into any storm drain or waterway by surface water. All spilled biosolids must be returned to the trailer from which they spilled, or be loaded into another appropriate transport vehicle.

2. Biosolids Characteristics and Personal Hygiene Procedures

A. Biosolids are processed organic residual solids from domestic sewage treatment, containing nitrogen, phosphorus, trace metals, and some pathogenic (disease-causing) organisms. Biosolids being transported are typically (*x*) % total solids, with a *(Fill in description here, e.g. moist to dry mud)* consistency. Biosolids become dirt-like when solids exceed 45%. The material contains (*x*) % volatile solids, with a pH of (*x*).

B. Personnel cleaning up a spill of biosolids should:
- Wear gloves for shoveling, sweeping or handling biosolids.
- Not eat, drink, smoke or chew while working directly with biosolids.
- Wash hands (and as necessary all other exposed parts of the body) with waterless hand cleaner, or soap and water, following spill clean-up and prior to eating, drinking, smoking or chewing.

3. Over-The-Road Spill Response Procedures

A. Park the truck on the side of the road and place traffic cones, reflectors and/or flares to divert traffic around the spill. Remain with the truck and spilled materials, unless it is necessary to leave temporarily to contact emergency services.

B. Drivers shall notify their Supervisor as soon as possible by radio or by phone *(Fill in area code & phone number here)*. Give the location and amount of biosolids spilled. Also notify the California Highway Patrol by telephone [911], if the spill has occurred on a public right of way.

C. Inform the authorities that you are hauling biosolids (treated sewage sludge) which is non-hazardous and non-toxic.

D. Cooperate with the authorities, assist with traffic control and clean-up.

E. Do not leave the scene of any spill, even a small one, until it is cleaned up. You may clean up small spills first and then report the spill.

4. Clean-up Procedures

A. Load spilled biosolids back into the vehicle if it is operable. If the vehicle is disabled, the spill must be loaded into an alternate vehicle.

B. Spilled biosolids must be prevented from migrating off the incident site, into storm drains, or into surface waters. This is especially important if an incident occurs in rain conditions. Biosolids spills may be diked or controlled with sand, sand bags, straw, absorbents, or other blocking material.

C. A small spill may be loaded into the vehicle by a two person crew working with shovels. A large spill must be loaded into the vehicle by an appropriate rubber tired loader. The most efficient loading option must be made by the scene coordinator, based on equipment availability and spill size.

D. After the spill has been loaded, the incident site must be cleaned. Spills may be cleaned by sweeping the site of remaining debris. Do not wash off tools or trucks at the spill location; return tools and trucks to the wastewater treatment plant for cleaning.

E. Cleaned up spills should either be taken to the original destination or to a landfill permitted to receive biosolids. They may also be accepted by the originating sewage treatment plant.

APPENDIX H

_____ Address _____

(*Applier Name Here*)

_____

_____

Phone No. _____

Please call us with any questions. Fax No. _____

FIELD CHANGE NOTIFICATION[1]

This notice is to inform you that on _____
(*Date Here*)

_____ moved its spreading operation to field _____
(*Applier Name Here*) (*Field Name/# Here*)

It is anticipated that the application period will be from _____ to _____
(*Date Here*) (*Date Here*)

FIELD INFORMATION

Field Location:
County/Crossroads _____

T_____ R_____ S _____ Lat. _____ Long. _____

Field Size:
Acres _____ Hectares _____

CROP/NITROGEN INFORMATION

Scheduled Crop _____

Estimated Planting Date _____ Estimated Harvest Date _____

Crop Nitrogen Requirement _____ lbs/acre

Additional Nitrogen Sources:

Biosolids Carry-Over	Last Year (Year 2)	_____	lbs/acre
	Year 3	_____	lbs/acre
Non-Biosolids		_____	lbs/acre
Total		_____	lbs/acre

Biosolids Target Rate[2] _____ lbs/acre

PERMITS

State _____
Regional _____
County _____
Other _____

[1] Form to be completed by the Applier for each field change.
[2] Net allowable nitrogen from current biosolids application (crop requirement - additional sources)

Modified Form - Pima Gro Systems, Inc.

APPENDIX I

FIELD _____ SUMMARY REPORT[1]

Field Information

Location: T_____ R_____ S_____
County / Crossroads: _____
Size: Acres_____ Hectares _____
Area Applied: Acres_____ Hectares _____ (attach map if different from above)
Applier: _____

Applications History

Dates of Application	Applier	Total dry tons	Total dry metric tons
/ / - Present			
/ / - / /			
Lifetime Applications[2]			

Current Applications Summary

Biosolids Source	Dates	%TS	Wet tons	Dry Tons	Dry Metric Tons
Generator X	/ / - / /				
Generator Y	/ / - / /				
Generator Z	/ / - / /				
Total					

Crop Information

Scheduled: Crop _____ Plant Date _____ Harvest Date _____
Crop Nitrogen Requirement (lbs N/acre): _____ (kg N/ha) _____
Carry-over/Additional Nitrogen[3] (lbs N/acre): _____ (kg N/ha) _____
Biosolids Target Rate[4] (lbs N/acre): _____ (kg N/ha) _____
Actual Biosolids N loading (lbs N/acre): _____ (kg N/ha) _____
Calculations are attached.
Actual crop planted, plant date, harvest date, and market will be submitted in the Annual Report.

Cumulative Pollutant Loadings (kg/ha)

Pollutant		CPLR Limit	Pollutant		CPLR Limit	Pollutant		CPLR Limit
As	_____	41	Pb	_____	300	Se	_____	100
Cd	_____	39	Hg	_____	17	Zn	_____	2,800
Cu	_____	1,500	Ni	_____	420			

Do any metals exceed 90% of Limits? If so, list. _____

Site Restrictions

Type of Access Restriction: _____
Will Grazing be practiced? If so, list dates. _____

COMMENTS ARE ATTACHED [if applicable]

CERTIFICATION [modify as appropriate]
"I certify under penalty of law that the requirements to obtain information in 503.12(e)(2), the management practices in 503.14, the site restrictions in 503.32 (b)(5) and the vector attraction reduction requirements in [503.33(b)(9) or (b)(10), if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practice and the site restrictions [and the vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

_____ _____
Signature Date

[1] Form to be completed by the Applier for each application.
[2] Since 7/20/93 or earlier if it is known that CPLR biosolids were applied prior to 7/20/93.
[3] Nitrogen from previous biosolids applications and from other nitrogen sources.
[4] Net allowable nitrogen from biosolids (crop requirement - carry-over/additional).

APPENDIX J

GLOSSARY

Aerobic Digestion: The degradation of organic matter brought about through the action of microorganisms in the presence of elemental oxygen for purposes of stabilization, volume reduction, and pathogen reduction. The process is carried out in a tank or other vessel called a digester.

Agricultural Land: Land on which food, feed, or fiber crops are grown. This includes range land and/or land used as pasture.

Agronomic Rate: The whole biosolids application rate designed to provide the amount of nitrogen needed for the crop or vegetation grown on the land and designed to minimize the amount of nitrogen in the biosolids that passes below the root zone of the crop or vegetation grown on the land, to the ground water.

Ammonia Nitrogen: The quantity of elemental nitrogen present in the form of ammonia (NH_3) normally present at fairly high levels in biosolids. This form of nitrogen is readily converted to nitrate nitrogen and, therefore, is considered to be immediately available to plants, or may be lost to the atmosphere (volatilized) if surface applied.

Anaerobic Digestion: The degradation of organic matter brought about through the action of microorganisms in the absence of elemental oxygen for purposes of stabilization, volume reduction and pathogen reduction. The process is carried out in a tank or other vessel called a digester.

Annual Pollutant Loading Rate (APLR): The maximum amount of a pollutant that can be applied to a unit area of land during a 365-day period. This term describes pollutant limits for biosolids that is given away or sold in a bag or other container for application to the land.

Annual Whole Biosolids Application Rate: The maximum amount of biosolids on a dry weight basis that can be applied to a land application site during a 365-day (1-year) period.

Beneficial Use: Taking advantage of the nutrient content and soil conditioning properties of an organic waste product to supply some or all of the fertilizer needs of an agronomic crop or stabilizing vegetative cover.

Biosolids: A primarily organic solid product produced by wastewater treatment processes that can be beneficially used. They are the treated solid, semi-solid, or liquid residues generated during the treatment of domestic sewage in a wastewater treatment facility (such facilities may also receive an industrial component). Biosolids meet all of the Part 503 pollutant concentration, pathogen reduction, and vector attraction reduction criteria. The residues include, but are not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes, but do not include grit and screenings generated during the preliminary treatment of domestic sewage.

Buffer: An area of land that designates a zone of separation between possible conflicting land uses.

Bulk Biosolids: Biosolids not sold or given away in a bag or other container (with a load capacity of one metric ton or less) for application to the land.

California Environmental Quality Act (CEQA): The California legislative enactment which requires public agencies to assess the environmental impacts of public and private projects before governmental authorization of the project is granted.

CFR: Code of Federal Regulations. A document of the United States Government presenting federal agency rules, regulations, and guidelines.

Class A Biosolids: Biosolids meeting Part 503 Class A pathogen reduction requirements.

Class B Biosolids: Biosolids meeting Part 503 Class B pathogen reduction requirements.

Cumulative Pollutant Loading Rate (CPLR): The maximum amount of an inorganic pollutant that can be applied to an area of land. This term applies to bulk biosolids that are land applied.

CWEA: California Water Environment Association. A professional organization of administrators, engineers, and treatment plant operators engaged in water quality enhancement and water pollution abatement in California.

Dewatered Biosolids: The biosolids remaining after removal of water by draining, centrifugation, filtering or pressing.

Domestic Sewage: Waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works.

Exceptional Quality Biosolids: Biosolids that meet the most stringent limits for pollutant concentrations, pathogen reduction and vector attraction reduction.

Feces: Excrement from the gastrointestinal tract, consisting of residue from food digestion and bacterial action.

Hazardous Waste: Any waste that is potentially damaging to environmental health because of toxicity, ignitability, corrosivity, chemical reactivity, or other action.

Humus: The dark-colored carboniferous residue in the soil resulting from the decomposition of vegetable tissues of plants. The relatively resistant fraction of soil organic matter that forms during biological decomposition of organic residues. Humus usually constitutes the major fraction of soil organic matter.

Inorganic Nitrogen: Nitrogen that is in the ammonium (NH_4^+) or nitrate (NO_3^-) form, either in biosolids or in the soil.

Land Application: The placement of biosolids on land at a predetermined rate to support vegetative growth.

Land Application Field: A discrete area of land within a land application site that is the smallest unit of land for which monitoring, record keeping, and reporting requirements apply.

Land Application Site: An area of land covered by a single permit on which biosolids are land applied to condition the soil or to fertilize crops or vegetation grown in the soil.

Leachate: Liquid that has percolated through permeable material and has extracted soluble dissolved or suspended materials from it.

Leaching: Removal of soluble minerals, nutrients, organic chemicals, and pesticides from the soil by water passing through the soil.

Legume: A crop that forms a specific association with soil bacteria that are capable of fixing nitrogen, that is, transforming nitrogen gas to organically combined nitrogen. Common legumes include alfalfa, clovers, peas, and soybeans. Nitrogen fixation can provide most of the nitrogen of the crop, and it can provide large amounts of residual nitrogen for succeeding crops.

Macronutrients: An element required in large amounts for the growth and development of plants such as nitrogen, phosphorus, and potassium.

Micronutrients: Essential plant foods usually required in minute quantities such as zinc, iron, copper.

Microorganisms: Microscopic organisms, either plant or animal, invisible or barely visible to the naked eye. Examples are algae, bacteria, fungi, protozoa, and viruses.

Mineralization: Biochemical conversion of nitrogen in the organic matter of soils and biosolids to inorganic nitrogen. Mineralization produces nitrogen in the ammonium (NH_4^+) form, which is then converted to the nitrate (NO_3^-) form by the nitrification process.

Moisture Content: The quantity of water present in soil, biosolids, or residual solids, usually expressed in percentage of wet weight.

Monitoring: Routine observation, sampling, and testing of designated locations and/or parameters to determine efficiency of treatment or compliance with standards or requirements.

Nitrate Nitrogen: A form of nitrogen which is oxidized from ammonia nitrogen. It is a soluble form which is immediately available to plants, does not volatilize, and may move downward through the soil to contaminate groundwater. Nitrate is usually present in small amounts in biosolids.

Nitrification: The biological conversion of ammonium (NH_4^+) to nitrate (NO_3^-) in soil. As the nitrogen cycle operates in most soils, the nitrification step follows the mineralization step, in which organic nitrogen is converted to ammonium (NH_4^+).

Nitrite Nitrogen: A form of nitrogen produced during the conversion of ammonia nitrogen to nitrate nitrogen by soil microorganisms or by the conversions of nitrates to gaseous compounds. Nitrite is usually present in small amounts in biosolids.

Nitrogen: An essential nutrient often present in biosolids as ammonia, nitrate, nitrite, and organic nitrogen.

Nutrient: Any substance that is assimilated by organisms and promotes growth. The term generally refers to nitrogen, phosphorus, and potassium in agriculture, but can also apply to other essential and trace elements.

Organic Nitrogen: Nitrogen that is combined in the molecular structure of organic compounds. Most of the organic nitrogen in soils occurs as proteins and amino acids or amine groups.

PAN: Plant Available Nitrogen. Nitrogen primarily in the form of nitrate or ammonia ions readily available to plants.

Pathogens: Disease-causing organisms such as bacteria, protozoa, viruses, and parasites.

Percolation: The movement or flow of water through the interstices or the pores of a soil or other porous medium.

Permeability: The rate that water moves through the soil. Permeability depends on the amount, size, and interconnectedness of soil pores. These in turn are related to soil texture, soil structure, and soil density.

PFRP: Process to further reduce pathogens as defined in Appendix B to Part 503-Pathogen Treatment Processes.

pH: A number that indicates the relative acidity or alkalinity of a material. A pH of 7.0 indicates a neutral material. Lower numbers indicate acidic materials. Higher numbers indicate alkaline materials.

Ponding: The process of creating a still, shallow body of water, smaller than a lake, usually very small accumulations of water on the soil surface.

Potable Water: Water of drinking quality.

POTW: A publicly or privately owned treatment works that process sewage and generate biosolids.

Pretreatment: Treatment of industrial wastewater to remove pollutants from the wastewater before discharge to a POTW. This treatment is necessary for the industry to comply with U.S. EPA limits or local municipality limits.

PSRP: Process to significantly reduce pathogens as defined in Appendix B to Part 503-Pathogen Treatment Processes.

Representative Sample: A portion of a material as near in consistency and content as possible to that in the larger body of the material being sampled; a portion characteristic of or a cross-section of the entire volume of the material being sampled.

Residual Nitrogen: Nitrogen that remains in the soil after the harvest of a crop. Residual nitrogen is either immediately available or will become available to the succeeding crop. Sources of residual nitrogen include inorganic nitrate that is not leached from the soil, organic nitrogen in crop residues, and organic nitrogen in previous biosolids applications. Residual nitrogen is also termed carryover nitrogen.

Soil Amendment: Anything that is added to the soil to improve its physical or chemical condition for plant growth. Lime, gypsum, inorganic fertilizers, and organic materials, including biosolids, are all soil amendments.

Soil Conditioner: Any material applied to improve aggregation and stability of structural soil aggregates. Biosolids provide these benefits and are therefore a soil conditioner.

Soil Survey: The process by which a soil map is made. Soil scientists walk over the land, observe soil and landscape properties, classify the soils, and locate soil boundaries of the field. They use air photo base maps to record the location of soil boundaries and label each delineation with a map unit symbol.

Staging: The placement of biosolids on the ground for up to 48 hours to facilitate the transfer of biosolids between the transportation and application vehicles.

Storage: The placement of biosolids on the ground for more than 48 hours.

TKN: Total Kjeldahl Nitrogen. An analytical technique which tests for organic nitrogen plus ammonia nitrogen.

Total Nitrogen: The sum of organic nitrogen, ammonia nitrogen, nitrate nitrogen, and nitrite nitrogen.

Vector Attraction: The characteristic of residual solids or biosolids that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents such as pathogens.

Volatile Solids: Materials, generally organic, which can be driven off from a sample by heating, usually to 550 degrees C; non-volatile inorganic solids, ash, remain.

Volatilization: Conversion of ammonium (NH_4^+) in the soil to ammonia gas (NH_3) and escape of ammonia into the atmosphere.

Water Table: The top of a zone of saturated soil. Water tables in soils are classified as perched, apparent, or artesian. A perched water table refers to a zone of saturation that is underlaid by unsaturated soil. Perched water tables are associated with restrictive layers. An apparent water table refers to a thick zone of saturated soil in which there is no evidence of restrictive layers. An artesian water table refers to water under pressure that is trapped beneath an impermeable layer. The water table rises when the impermeable layer is breached.

III.A. 4. Ten Tenets of OC San's Biosolids Management Plan

Ten Tenets of OC San's Biosolids Management Plan

1. Allocate up to 50 percent of biosolids per biosolids contractor	OC San's land application contract requires 100% failsafe contingency capacity, but OC San would typically distribute its biosolids production between a number of different contracts.
2. Allocate up to 50 percent of biosolids to each geographic end use market	Biosolids processed in different areas may still compete for the same customers in the same geographic area. To avoid flooding the market with OC San's biosolids in any one geographic area, OC San will track the final destination of its products to ensure that they are distributed geographically. In this case, geographic area might generally be thought of on the county level, but some facilities distribute over multiple counties and large agricultural counties such as Kern and San Bernardino might be divided into smaller geographic zones for marketing purposes (e.g. urban vs. rural, east vs. west) to acknowledge unique features of those areas. Diversifying the geographic distribution of end products ensures OC San is not overwhelming one market where it has more than one competing contractor. For example, if OC San's biosolids were to be used in soil blends and compost in the same market sectors and regions, potential exists for market saturation or significant decrease of marketing efficiency.
3. Maintain at least three different biosolids management facilities at any time	Part of OC San's long-term success can be attributed to meeting this tenant.
4. Maintain at least two different biosolids management practices at any time	Maintaining at least two distinct biosolids management practices allows OC San to weather any significant market or regulatory change.
5. Maintain at least two different hauling companies within the biosolids management portfolio	As described above, some contractors include hauling in their scope of services, but may elect to subcontract this service. To support an adequate level of service, OC San will monitor and ensure that among the different contracts, at least two distinct hauling companies are under contract, acknowledging that more may be needed.
6. Maintain at least 200 percent contingency capacity at end use sites	All of OC San's biosolids end use contracts require contingency capacity, which would allow OC San to send its full production to any given site should other contracted sites be temporarily or permanently closed. Collectively maintaining 200 percent contingency capacity across the end use contracts allows OC San flexibility in operating, even during times of peak production. OC San has maintained about 800-1200% contingency capacity in recent years.
7. Maintain 20 percent fail-safe hauling capacity	Hauling is currently the bottleneck for transporting biosolids from the plant to their final destination. However, it is not practical or cost-warranted to require a single hauler to have idle trucks and drivers in case of an emergency to provide 100 percent contingency capacity. Based on recent focus in this area, OC San believes that an additional 20 percent fail-safe capacity is a reasonable and balanced approach for the haulers and allows OC San the operational flexibility required for plant processes. This may be even more important for a Class A biosolids product in the event that standards are not met for any period of time.
8. Track and encourage development of emerging markets and/or end uses for biosolids, especially for local end use options	OC San has long placed a value on using biosolids in the local area; this concept is better supported with production of a Class A product.
9. Allocate up to 10 percent of total biosolids production for participation in emerging markets, including participation in pilot or demonstration projects	As discussed above, several emerging markets continue to evolve within California. As appropriate opportunities arise, OC San needs the flexibility to participate in such projects.
10. Explore partnerships with area soil blenders to allow incorporation of OC San's Class A product into local markets	As landfills phase out, soil blending provides an opportunity for local beneficial use and supports OC San's overall desire to use its biosolids in the local area.

III.A. 5. Biosolids Regulatory Requirements

Orange County Sanitation District
Biosolids Regulatory Requirements

The following list of requirements are environmental permits directly related to and are overseen by OC San's Biosolids Program. There are other related regulations that are not directly controlled nor verified by our program. For instance, regulations related to occupational health and safety, air quality, Department of Transportation, California Environmental Quality Act and related mitigations, and financial issues are not addressed here. For additional requirements refer to the OC San Biosolids Program Policy commitments, the Master Plan's Ten Tenets, and the Manual of Good Practice Checklist.

Table of Contents

Class B Biosolids Production – OC San Plant Operations Requirements

OC San NPDES Permit No. CA0110604 (NPDES)
Arizona Administrative Code Title 18, Ch. 9, Article 10 (R18-9)
EPA Code of Federal Regulations Title 40 Part 503 (503)

Rule	Record/Report	Verification
NPDES VI.C.4.b.1.i There shall be adequate screening at the plant headworks and/or at the biosolids treatment units to ensure that all pieces of metal, plastic, glass and other inert objects with a diameter greater than 3/8 inches are removed.	P2 has 5/8" and P1 has two 5/8" and two 1 ¼". New P1 headworks in design. Grinders are located ahead of P1 and P2 dewatering.	
NPDES VI.C.4.b.4.a *Prior* to land application, the Discharger shall demonstrate that biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed under 40 CFR 503.32.	SCADA, MSO.	NANI, Audit
NPDES VI.C.4.b.4.c For biosolids that are land applied or placed in a surface disposal site, the Discharger shall track and keep records of the operational parameters used to achieve the Vector Attraction Reduction requirements under 40 CFR 503.33(b).	MSO	NANI, Audit
R18-9-1012 H The person who prepares the biosolids or the applicator shall monitor pathogen and vector attraction reduction treatment operating parameters, such as time and temperature, shall be monitored on a continual basis.	SCADA, MSO	Audit
503.17(a)(4) If the pollutant concentrations in 503.13(b)(3) and the Class B pathogen requirements in 503.32(b) are met when bulk sewage sludge is applied to agricultural land, forest, a public contact site or a reclamation site: (i) The person who **prepares the bulk sewage sludge** shall develop the following information and shall retain the following information for 5 years: A) The concentration of each pollutant listed in Table 3 of 503.13 in the bulk sewage sludge. B) The following certification statement: *"I certify under, penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirements in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through (b)(8) if one of those requirements were met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements [and vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."* C) A description of how the Class B pathogen requirements in 503.32(b) are met D) When one of the vector attraction reduction requirements in 503.33(b)(1) through (b)(8) is met, a description of how the vector attraction reduction requirement is met.	NANI, Annual report	Audit
503.32(b)(1) (i) The requirements in either 503.32(b)(2), (b)(3), or (b)(4) shall be met for a sewage sludge to be classified Class B with respect to pathogens. 503.32(b)(1); *R18-9-1006 C* (ii) The site restrictions in 503.32(b)(5); (*R18-9-1009*) shall be met when sewage sludge that meets the Class B pathogen requirements in 503.32(b)(2), (b)(3), (b)(3), or (b)(4) is applied to the land.	NANI, Annual report	Audit
Pathogen Reduction		Audit

503.32(b)(3) *Class B – Alternative 2* *Sewage sludge that is used or disposed shall be treated in one of the Processes to Significantly Reduce Pathogens described in Appendix B of this part.*	NANI, Annual report	
503 Appendix B(A)(3); R18-9-1006(E)(5) Anaerobic digestion – sewage sludge is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius, and 60 days at 20 degrees Celsius.	SCADA, MSO, NANI – Maintain daily records. Report minimum of 15-day rolling average.	NANI, Audit
Vector Attraction Reduction 503.33(a)(1) One of the vector attraction reduction requirements in 503.33(b)(1) through (b)(10) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contract site, or a reclamation site.	NANI, Annual report	Audit
503.33(b)(1), AZ R18-9-1010 A(1) The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38% (see calculation procedures in "Environmental Regulations and Technology – Control of Pathogens and Vector Attraction in Sewage Sludge", EPA-625/R-92/013, 1992, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268)	NANI VSR Calculation Report minimum	Audit

Biosolids Analytical Monitoring Requirements

EPA Code of Federal Regulations Title 40 Part 503 (503)
OC San NPDES Permit No. CA0110604 (NPDES)
Arizona Department of Environmental Quality, AZDEQ Title 18, Ch. 9, Article 10 (R18-9)
EPA Code of Federal Regulations Title 40 Part 258 for landfill disposal (*CFR* 258)
EPA Code of Federal Regulations Title 40 Part 261 for hazardous waste definitions (*CFR 261*)
EPA Code of Federal Regulations Title 40 Part 401.15 for list of Clean Water Act designated toxic pollutants designated in CWA 307 (*CWA 307*)
CCR Title 27 (section 20220 in Chapter 3, Article 2) for landfill disposal (*Title 27*)
CCR Title 22 (section 66261 in Chapter 11, Article 3) for hazardous waste characteristics and limits (*Title 22*)

Rule	Record/Report	Verification
503.8(a), NPDES VI.C.4.b.3.a Sampling. Representative samples of sewage sludge that is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator shall be collected and analyzed.	- OC San lab sampling schedule - Laboratory Report - NANI - Annual Report - Annual ECAP task to review and train on Sampling SOP - Annual Compliance Certification Training	- NANI Historical - SSRS report & graphs - Audit
R18-9-1012 E The applicator, person who prepares biosolids, or a person collecting samples for the applicator or preparer for analysis shall obtain the samples in a manner that does not compromise the integrity of the sample, sample method, or sampling instrument and shall be representative of the quality of the biosolids being applied during the reporting period.	- OC San lab sampling schedule - Laboratory Report - NANI - Annual Report	Audit

	- Annual ECAP task to review and train on Sampling SOP - Annual Compliance Certification Training	
R18-9-1012 G The person who prepares biosolids or the applicator shall ensure that the biosolids samples are analyzed as specified by the analytical methods established in 40CFR503.8, July 1, 2001 edition, or by the wastewater sample methods and solid, liquid, and hazardous waste sample methods established in AAC R9-14-612 and R9-14-613. The person who prepares the biosolids or the applicator shall ensure that the biosolids analyses are performed at a laboratory operating in compliance with ARS section 36-495 es seq. The information in 40CFR503.8 is incorporated by reference, does *not* include any later amendments or editions of the incorporated matter and is on file with the Department and the Office of the Secretary of State.	OC San contract with AZ-Certified Contract Laboratory	Laboratory review of methods (once per contract period) Audit
503.13(a); R18-9-1005 A 1) Bulk sewage sludge or sewage sludge sold or given away in a bag or other container shall not be applied to the land if the concentration of any pollutant in the sewage sludge exceeds the ceiling concentrations for the pollutant in Table 1 of 503.13 (and *R18-9-1005)*. 2) if bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site, either: i) the cumulative loading rate for each pollutant shall not exceed the cumulative pollutant loading rate for the pollutant in Table 2 of 503.13 (*and Table 4 of R18-9-1005; additional requirements listed in regulations)* or; ii) The concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 3 of 503.13 (*and Table 2 of R18-9-1005)*.	NANI Annual Report (see also Contractor section)	LIMS Product Specifications NANI Annual Report Audit
503.16(a)(1), NPDES VI.C.4.b.3.a The frequency of monitoring for the pollutants listed in Table 1-4 of 503.13; the pathogen density requirements in 503.32(a) and in 503.32(b)(2) through (b)(4); and the vector attraction reduction requirements 503.33(b)(1) through 503.33(b)(8) shall be the frequency in Table 1 of 503.16. Sample required once monthly. If biosolids are removed for use or disposal on a routine basis, sampling should be scheduled at regular intervals throughout the year.	- OC San Lab sampling schedule Requirements for Testing - Arizona-certified contract laboratory contract, and chain of custody - NANI - Annual Report - Laboratory QAP Biosolids Sampling Appendix	NANI Annual Report Audit
R18-9-1012 D The Department may order the person who prepares biosolids or the applicator to collect and analyze additional samples to measure pollutants of concern other than those established in Table 1 of R18-9-1005.	As needed	N/A
R18-9-1012 F A person responsible for sampling the biosolids shall track biosolids samples using a chain-of-custody procedure that documents each person in control of the sample from the time it was collected through the time of analysis.	- OC San chain of custody - Annual ECAP task to review and train on Sampling SOP - Annual Compliance Certification Training - Laboratory QAP	Audit
503.12(d)		Audit

The person who prepares bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall provide the person who applies the bulk sewage sludge written notification of the concentration of total Nitrogen (as N on a dry weight basis) in the bulk sewage sludge.	NANI is emailed to biosolids contractors. Laboratory data is available upon request.	
NPDES VI.C.4.b.1.j Sewage sludge containing more than 50 mg/kg PCBs shall be disposed of in accordance with 40 CFR 761.	- Requirements for Testing - OC San lab sampling schedule - Priority Pollutant Report in Annual Report	LIMS Product Specifications Semi-annual hazardousness certification Audit
NPDES VI.C.4.b.3.b The Discharger shall sample biosolids twice per year for the pollutants listed under CWA section 307(a) using best practicable detection limits.	- Requirements for Testing - OC San Lab sampling schedule - Priority Pollutant Report in Annual Report	LIMS Data Review Audit
NPDES VI.C.4.b.3.c Class 1 facilities and federal facilities with >5 mgd influent flow shall test dioxins/dibenzofurans using a detection limit of <1 pg/g, during their next sampling period if they have not done so within the past 5 years and once per 5 years thereafter.	- Requirements for Testing - OC San Lab sampling schedule - Priority Pollutant Report in Annual Report - Annual Report - ECAP Task	Audit
NPDES VI.C.4.b.6 Biosolids placed in a municipal landfill shall be tested by the Paint Filter Test (SW-846, Method 9095) at the frequency specified in Table 1 of 40 CFR 503.16, or more often if necessary to demonstrate that there are no free liquids.	- Landfill profiling process - Requirements for Testing - OC San Lab sampling schedule - Priority Pollutant Report in Annual Report	Audit
258.28(a) Bulk or non-containerized liquid waste may not be placed in MSWLF units, as tested by Paint Filter Test.	- Landfill profiling process - Requirements for Testing - OC San Lab sampling schedule - Priority Pollutant Report in Annual Report	Audit
NPDES VI.C.4.b.3.a All results must be reported on a 100% dry weight basis and records of all analyses must state on each page of the analytical results whether the reported results are expressed on an "as-is" or a "100% dry weight" basis.	Arizona-certified contract laboratory contract and specifications	LIMS Data Review Audit

Orange County Sanitation District
Biosolids Regulatory Requirements

The following pollutants are those listed on 40 CFR 503.13 unless otherwise footnoted. Additional analytical requirements applicable to OC San may be found listed on the Requirements for Testing.

	Ceiling Concentration Limits (monthly maximum)	Pollutant Concentration Limits (monthly avg)	Average Plant Values in OC San 2017 Annual Report		
Parameter	Table 1 (AZ Table 1)[1,2] mg/Kg dry	Table 3 (AZ Table 2)[1,2] mg/Kg dry	Plant No. 1 mg/Kg	Plant No. 2 mg/Kg	
Arsenic	*75*	*41*	*8.6*	*9.7*	
Cadmium	*85*	*39*	*3.8*	*5.6*	
Chromium[2]	*3,000*	*N/A*	*34*	*42*	
Copper	*4,300*	*1,500*	*420*	*450*	
Lead	*840*	*300*	*11*	*12*	
Mercury	*57*	*17*	*0.94*	*0.74*	
Molybdenum	*75*	*N/A*	*14*	*15*	
Nickel	*420*	*420*	*31*	*32*	
Selenium	*100*	*100*	*6.4*	*5.9*	
Zinc	*7,500*	*2,800*	*620*	*750*	
Other Monthly Biosolids Compliance Reported Report Limits (aka NANI)					
pH[1]	*>6.5*				
Total solids[3]	*>15%*		18%	20%	
Volatile Solids Reduction	*>38%*				
Organic-N[4]	*No limits.* *Data used by contractor to calculate agronomic rate.* Total N = TKN + N03 + NO2; Organic N = TKN - NH3		42,250	37,167	
Ammonia-N[4]			8,792	8,883	
Total-N[4]			2.4	1	
Priority Pollutants Report					
CWA 307[5]	*Semi-annual*	Requirements for Testing			
CFR 261[6]	*Annual*	Requirements for Testing			
Title 22[6]	*Annual*	Requirements for Testing			
PCBs[7]	*50*	*50*	*<0.58*	*<0.94*	
Dioxins[7]	*0.01*	*0.01*	*ND – 1,200 pg/g (parts per trillion)*		

[1] R18-9-1005 requirement.
[2] Arizona tables have additional decimal place / significant figure (to tenths place).
[3] California Title 27 landfill disposal limits for primary & secondary sludges blended
[4] To calculate Total Nitrogen, samples are analyzed for TKN, Nitrate (NO3) and Nitrite (NO2) and the results summed [Total N = TKN + N03 + NO2]. Organic N = TKN - NH3. Until July 2017, OC San was calculating and reporting Organic Nitrogen (instead of Total Nitrogen) by subtracting Total Kjeldahl Nitrogen (TKN) from Ammonium Nitrogen.
[5] NPDES permit requirement.
[6] Federal and California Hazardous Waste limits to ensure OC San biosolids non-hazardous. OC San runs TTLC (basic leaching method, California has most limits also listed as TTLC) and converts results to compare to the STLC (California limits for leachate – 10-time dilution, weak acid for landfill leachate) and TCLP (Toxicity Characteristic Leaching Procedure) (Federal limits for leachate - 20-time dilution, weak acid for landfill leachate).
[7] NPDES permit requires once each 5 years at a detection limit 1 pg/g.

NPDES VI.C.4.b.7.c Within a given monitoring period, if any biosolids do not meet the applicable metals concentration limits specified under 40 CFR 503.13, then the Discharger (or its contractor) must pre-notify USEPA, and determine the cumulative metals loading at that site to date, as required by 40 CFR 503.12.	*Contractors and regulators would be verbally notified prior to final NANI*	Contractor Annual Report Audit

	Contractor Calculates and Tracks Cumulative Loading Rates NANI Annual Report	

Biosolids Transportation

Code of Federal Regulation Title 23 CFR 658 (23 CFR 658)
OC San NPDES Permit No. CA0110604 (NPDES)
Arizona Department of Environmental Quality, AZDEQ Title 18, Ch. 9, Article 10 (R18-9)

Rule	Record/Report	Verification
49 CFR 658.17 (a) The provisions of the section are applicable to the National System of Interstate and Defense Highways and reasonable access thereto. (b) The maximum gross vehicle weight shall be 80,000 pounds except where lower gross vehicle weight is dictated by the bridge formula. (c) The maximum gross weight upon any one axle, including any one axle of a group of axles, or a vehicle is 20,000 pounds. (d) The maximum gross weight on tandem axles is 34,000 pounds.	Bill of lading tickets and max gross weight field in software.	BTS Audit
NPDES VI.C.4.b.1.f All biosolids having a water content that is capable of leaching liquids shall be transported in leak proof vehicles. • The Discharger shall assure that haulers transporting biosolids off-site for treatment, storage, use, or disposal take all necessary measures to keep the biosolids contained. • Trucks hauling biosolids that are not Class A, as defined at 40 CFR 503.32(a), shall be cleaned as necessary after loading and after unloading, so as to have no biosolids on the exterior of the truck or wheels. • Trucks hauling biosolids that are not Class A shall be tarped. • All haulers must have spill clean-up procedures. • Trucks hauling biosolids that are not Class A shall not be used for hauling food or feed crops after unloading the biosolids unless the Discharger submits a hauling description, to be approved by USEPA, describing how trucks will be thoroughly cleaned prior to adding food or feed.	Biosolids contracts include OC San's BCR. Biosolids contractors use trucks for hauling compost and rocks, not food or feed crops.	Hauler inspections Site Inspections Audit
R18-9-1011 A A transporter of bulk biosolids into and within Arizona shall use covered trucks, trailers, rail-cars, or other vehicles that are leakproof.	Biosolids contracts include OC San's BCR.	Hauler inspections Site Inspections Audit
R18-9-1011 B A transporter of bulk biosolids in solid form into and within Arizona shall comply with the requirements in A.A.C. R18-13-310 (leak-proof with cover)	Biosolids contracts include OC San's BCR.	Hauler inspections Site Inspections Audit
R18-9-1011 C The transporter shall clean any trucks or trailers used to transport biosolids to prevent odors or insects breeding.	Biosolids contracts include OC San's BCR.	Pre-loading Inspections Hauler inspections Audit

R18-9-1011 D, R18-9-1014 B If bulk biosolids are spilled while being transported, the transporter shall: 1) Immediately pick up any spillage, including any visibly discolored soil, unless otherwise determined by the Department on a case by case basis. 2) Within 24 hours after the spill, notify the Department of the spill and submit written notification of the spill within 7 days. The written notification shall include the location of the spill, the reason it occurred, the amount of biosolids spilled and the steps taken to clean up the spill.	Biosolids contracts include OC San's BCR.	Audit

Class B Biosolids Reuse Management Practices

EPA Code of Federal Regulation Title 40 Part 257 (40 CFR 257)
EPA Code of Federal Regulations Title 40 Part 261 for hazardous waste definitions (CFR 261)
EPA Code of Federal Regulations Title 40 Part 503 (503)
OC San NPDES Permit No. CA0110604 (NPDES)
Arizona Department of Environmental Quality, AZDEQ Title 18, Ch. 9, Article 10 (R18-9)
Arizona Revised Statutes, Title 49, Chapter 5, Article 2 (ARS 49-5-2)
CalRecycle: California Code of Regulations, Title 27 Div 2, Ch 3, SCh 2, Art 2, Section 20200 (CCR 27-20220)

Discharger Management Practices

Rule	Record/Report	Verification
40 CFR 257.1 (b) These criteria also provide guidelines for the disposal of sewage sludge on the land when the sewage sludge is not used or disposed through a practice regulated in 40 CFR Part 503. (c)(11) The criteria do not apply to the use or disposal sewage sludge on the land when the sewage sludge is used or disposed in accordance with 40 CFR Part 503.	OC San is not utilizing this section currently and has not in the past.	N/A
503.6(e), (f) (e) Hazardous sewage sludge. This part does not establish requirements for the use or disposal of sewage sludge determined to be hazardous in accordance with 40 CFR part 261. (f) Sewage sludge with high PCB concentration. This part does not establish requirements for the use or disposal of sewage sludge with a concentration of polychlorinated biphenyls (PCBs) equal to or greater than 50 milligrams per kilogram of total solids (dry weight basis).	Annual Report Arizona-certified contract laboratory reports PCB Testing performed quarterly.	Haz-waste evaluation spreadsheet Generator Non-Haz Semi-annual Certifications Audit
R18-9-1001. Definitions "Biosolids" means sewage sludge, including exceptional quality biosolids, that is placed on, or applied to the land to use the beneficial properties of the material as a soil amendment, conditioner, or fertilizer. Biosolids do not include any of the following: a. Sludge determined to be hazardous under ARS 49-5-2 and 40 CFR 261; 5. "Hazardous waste" means garbage, refuse, sludge from a waste treatment plant, water supply treatment plant or air pollution control facility, or other discarded materials, including solid, liquid, semisolid or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations or from community activities which because of its quantity, concentration or physical, chemical or infectious characteristics may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or pose a substantial present or potential hazard to human health or the environment if improperly treated, stored, transported, disposed of or otherwise managed or	Annual Report Arizona-certified contract laboratory reports PCB Testing performed quarterly. OC San grit and screenings go to landfill. All OC San sewage solids are solids generated at wastewater treatment plant. GWRS is treating OC San's sewage, not surface or groundwater. Post	Haz-waste evaluation spreadsheet Generator Non-Haz Semi-annual Certifications Audit

any waste identified as hazardous pursuant to section 49-922. Hazardous waste does not include solid or dissolved material in domestic sewage, solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the federal water pollution control act (P.L. 92-500; 86 Stat. 816), as amended, or source, special nuclear or by-product material as defined by the atomic energy act of 1954 (68 Stat. 919), as amended. b. Sludge with a concentration of polychlorinated biphenyls (PCBs) equal to or greater than 50 milligrams per kilogram of total solids (dry-weight basis); c. Grit (for example, sand, gravel, cinders, or other materials with a high specific gravity) or screenings generated during preliminary treatment of domestic sewage by a treatment works; d. Sludge generated during the treatment of either surface water or groundwater used for drinking water; e. Sludge generated at an industrial facility during the treatment of industrial wastewater, including industrial wastewater combined with domestic sewage; f. Commercial septage, industrial septage, or domestic septage combined with commercial or industrial septage; or g. Special wastes as defined and controlled under A.R.S. Title 49, Chapter 4, Article 9. Sec 49-851. Definitions; applicability 5. "Special waste" means a solid waste as defined in section 49-701.01, other than a hazardous waste, that requires special handling and management to protect public health or the environment and that is listed in section 49-852 or in rules adopted pursuant to section 49-855. Special waste does not include return flows from irrigated agriculture, medical waste, used oil or by-products of a regulated agricultural activity, as defined in section 49-201, that are subject to best management practices under section 49-247, by-products of livestock, range livestock and poultry as defined in section 3-1201, pesticide containers regulated pursuant to title 3, chapter 2, article 6 or waste that contains radioactive materials that are subject to a permit or regulation under the atomic energy act of 1954 (42 United States Code section 2011; 68 Stat. 919), as amended, or title 30, chapter 4.	treatment process lime sludge is sent to P2 (M. Patel, OCWD 5/24/18). OC San's Source Control program does not allow discharge of special or hazardous wastes nor sludges to sewer system and permits reflect this.	
NPDES VI.C.4.b.1.a, *503.7* District is responsible for assuring that all biosolids are used or disposed in accordance with these (40CFR503, 258, 257, CWA 307) rules and federal biosolids requirements. The District is responsible for informing subsequent preparers, appliers, and disposers of the NPDES requirements.	Addressed in all aspects of OC San's Contractor Oversight. See Flowchart.	Audit
R18-9-1003 A A person shall not use or transport biosolids, apply biosolids to land, or place biosolids or a surface disposal site in Arizona, except as established in this Article.	Addressed in all aspects of OC San's Contractor Oversight. See Flowchart.	Audit
R18-9-1003 F A person who prepares biosolids shall ensure that the applicable requirements in this Article are met when the biosolids are applied to the land or placed on a surface disposal site.	Addressed in all aspects of OC San's Contractor Oversight. See Flowchart.	Audit
NPDES VI.C.4.b.4.b Prior to disposal in a surface disposal site, the Discharger shall demonstrate that biosolids meet Class B pathogen reduction levels, or ensure that the site is covered at the end of each operating day. If pathogen reduction is demonstrated using a "Process to Further Reduce Pathogens" or one of the "Processes to Significantly Reduce Pathogens", the Discharger shall maintain daily records of the operating parameters used to achieve this reduction.	OC San has never utilized surface disposal. Same requirements for land application met in all aspects of OC San's Contractor Oversight. See Flowchart.	Audit
503.4		Audit

Any person who prepares sewage sludge that is disposed in a municipal solids waste landfill unit shall ensure that the sewage sludge meets the requirements in 40CFR part 258 concerning the quality of materials disposed in a municipal solid waste landfill unit	Hazardous waste evaluation spreadsheet	
NPDES VI.C.4.b.1.b The Discharger shall take all reasonable steps to prevent or minimize any biosolids use or disposal which has a likelihood of adversely affecting human health or the environment.	Evidence to date supports that EPA's biosolids regulations have been protective of human health and the environment. Addressed in all aspects of OC San's Contractor Oversight. See Flowchart.	Audit
NPDES VI.C.4.b.1.g If biosolids are stored for over two years from the time they are generated, the Discharger must ensure compliance with all requirements for surface disposal under 40 CFR 503, Subpart C, or must submit a written notification to USEPA and the State with the information specified under 40 CFR 503.20(b), demonstrating the need for longer temporary storage. During storage of any length for non-Class A biosolids, whether on the facility site or off-site, adequate procedures must be taken to restrict access by the public and domestic animals.	OC San Biosolids IERP Contingency Plans Inadequate onsite storage exists to store biosolids for longer than a few days.	Audit
R18-9-1003 C The applicator shall obtain, submit to the Department, and maintain the information required to comply with the requirements of this Article.	Contractor BMP, OC San maintains copy of AZDEQ letter of acknowledgement to land apply.	Audit
CCR 27-20220 (c) Dewatered Sludge—Dewatered sewage or water treatment sludge may be discharged at a Class III landfill under the following conditions, unless DTSC determines that the waste must be managed as hazardous waste: (1) the landfill is equipped with a leachate collection and removal system (LCRS); (2) the sludge contains at least 20 percent solids (by weight) if primary sludge, or at least 15 percent solids if secondary sludge, mixtures of primary and secondary sludges, or water treatment sludge; and (3) a minimum solids to liquid ratio of 5:1 by weight shall be maintained to ensure that the co-disposal will not exceed the initial moisture holding capacity of the nonhazardous solid waste. The actual ratio required by the RWQCB shall be based on site specific conditions.	• OC San has not used a landfill for disposal since December 2016. • New organics regulations will require diversion of organics including biosolids. • NANI and Annual Report • OC San solids typically at least 17-18% • New centrifuges coming online will increase percent total solids.	Audit

Biosolids Management Contractor General Requirements

EPA Code of Federal Regulations Title 40 Part 503 (503)
OC San NPDES Permit No. CA0110604 (NPDES)
Arizona Department of Environmental Quality, AZDEQ Title 18, Ch. 9, Article 10 (R18-9)

OC San informs our Contractors of all their requirements through the service contract which requires them to follow the Biosolids Contractor Requirements (BCR) document. OC San performs periodic site inspections, internal audits, and requires monthly reports, and a Biosolids Management Plan (BMP).

Rule	Record/Report	Verification
NPDES VI.C.4.b.1.a Biosolids produced at OC San shall be used or disposed of in accordance with these (CWA-307, 40CFR 503, 257, 258) rules and applicable State regulations.	Addressed in all aspects of OC San's Contractor Oversight. See Flowchart.	Audit
R18-9-1012 J A person shall maintain, as specified in R18-9-1013, and report to the Department of specified in R18-9-1014, all compliance measurement, including the analysis of pollutant concentrations.	Addressed in all aspects of OC San's Contractor Oversight. See Flowchart.	Audit

R18-9-1015 A person subject to this Article shall allow, during reasonable times, a representative of the Department to enter property subject to this Article, to: 1) Inspect all biosolids pathogen and vector treatment facilities, transportation vehicles, and land application sites to determine compliance with this Article; 2) Inspect and copy records prepared in accordance with this Article; and 3) Sample biosolids quality.	This has never been a problem.	
NPDES VI.C.4.b.1.c No biosolids shall be allowed to enter wetlands or other waters of the US.	Contractor BMP, biosolids management contract-required OC San Biosolids Response & Recovery Plan	Inspections Audit
NPDES VI.C.4.b.1.d Biosolids treatment, storage, use, or disposal shall not contaminate groundwater.	Contractor BMP, Biosolids management contract-required OC San Biosolids Response & Recovery Plan	Inspections Audit
NPDES VI.C.4.b.1.e Biosolids treatment, storage, use, or disposal shall not create a nuisance such as objectionable odors or flies.	Contractor BMP, Biosolids management contract-required OC San Biosolids Response & Recovery Plan	Inspections Audit
NPDES VI.C.4.b.1.*g* If biosolids are stored for over two years from the time they are generated, the Discharger must ensure compliance with all requirements for surface disposal under 40 CFR 503, Subpart C, or must submit a written notification to USEPA and the State with the information specified under 40 CFR 503.20(b), demonstrating the need for longer temporary storage. During storage of any length for non-Class A biosolids, whether on the facility site or off-site, adequate procedures must be taken to restrict access by the public and domestic animals.	Contractor BMP, Biosolids management contract-required OC San Biosolids Response & Recovery Plan	Inspections Audit
NPDES VI.C.4.b.1.*h* Any biosolids treatment, disposal, or storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect the site boundaries from erosion, and to prevent any conditions that would cause drainage from the materials to escape from the site. Adequate protection is defined as protection from at least a 100-year storm and the highest tidal stage which may occur.	Contractor BMP	Inspections Audit
NPDES VI.C.4.b.1.*k* The Discharger shall comply, if applicable, with WDRs issued by Regional Water Boards, or the State Water Board, to which jurisdiction the biosolids are transported and applied; and with other applicable State jurisdictions not limited to Arizona biosolids rules and regulations governing biosolids transport, treatment, and beneficial reuse.	Addressed in all aspects of OC San's Contractor Oversight. See Flowchart.	Inspections Audit Regulatory inspection reports
NPDES VI.C.4.b.*2.a-c* The USEPA, State, or an authorized representative thereof, upon the presentation of credentials, shall be allowed by the Discharger directly, or through contractual arrangements with their biosolids management contractors, to: (a) Enter upon all premises where biosolids produced by the Discharger are treated, stored, used, or disposed of, by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal. (b) Have access to and copy any records that must be kept by either the Discharger or another party to whom the Discharger transfers biosolids for	Contractor BMP	Regulatory inspection reports

further treatment, storage, use, or disposal, under the conditions of this Order/Permit or 40 CFR 503. (c) Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations used in biosolids treatment, storage, use, or disposal by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal.		
NPDES VI.C.4.b.5 If biosolids are placed in a surface disposal site (dedicated land disposal site or monofill), a qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on the site will not contaminate an aquifer.	N/A – no surface disposal locations under contract at this time.	
R18-9-1013 C All records required for retention under this Section are subject to periodic inspections and copying by the department.	Contractor BMP	Regulatory inspection reports

Notifications/Reporting

EPA Code of Federal Regulations Title 40 Part 503 (503)
OC San NPDES Permit No. CA0110604 (NPDES)
Arizona Department of Environmental Quality, AZDEQ Title 18, Ch. 9, Article 10 (R18-9)

OC San informs Biosolids Contractors of OC San's requirements through the service contract and the Biosolids Contractor Requirements (BCR) document. OC San performs periodic site inspections, infrequent internal audits, and requires monthly reports and current Contractor Biosolids Management Plans (BMPs). If applicable, OC San's Contractors demonstrate how they meet the following requirement as noted below.

Rule	Record/Report	Verification
503.12(e)(2)(i), (ii), (iii), (iv) Before bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) (Table 2-PCLR) is applied to the land, the person who proposes to apply the bulk sewage sludge shall contact the permitting authority for the State in which the bulk sewage sludge will be applied to determine whether bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has been applied to the site since July 20,1993. If no biosolids has been applied since July 20, 1993, the cumulative amount for each pollutant listed may be applied to the site. If biosolids has been applied since July 20, 1993, and the cumulative amount of each pollutant previously applied to the site is known, this value is used to determine the additional amount of pollutant that can be applied to the site in accordance with Table 2. If the amount is not known, an additional amount of each pollutant shall not be applied to the site in accordance with 503.13(a)(2)(i)	Biosolids management contract-required BCR	Regulatory inspection reports
503.12(f), (g) When a person who **prepares** bulk sewage sludge provides the bulk sewage sludge to a person who **applies** the bulk sewage sludge to the land, or another person who prepares the sewage sludge, the person who provides the sewage sludge shall **provide the person who receives the sewage sludge notice and necessary information to** comply with the requirements in this subpart.	NANI via e-mail and on website	Regulatory inspection reports Audit
R18-9-1014 A *A* person who **prepares biosolids** for application **shall provide the applicator with the necessary information to comply** with the Article including the concentration of pollutants listed in R18-9-1005 and the concentration of Nitrogen in the biosolids.	NANI via e-mail and on website	Regulatory inspection reports Audit

NPDES VI.C.4.b.7.b If biosolids are shipped to another State or Tribal Land, the Discharger shall send 60 days prior notice of the shipment to the permitting authorities in the receiving State or Tribal Land, and the USEPA Regional Office.	ECAP Knowledgebase New Site or Facility Procedure	Audit
NPDES VI.C.4.b.7.c Prior to using any biosolids from this facility (other than composted biosolids) at a new or previously unreported site, the Discharger shall notify USEPA and the State. This notification shall include a description and topographic map of the proposed site(s), names and addresses of the applier and site owner, and a listing of any State or local permits which must be obtained. It shall also include a description of the crops or vegetation to be grown, proposed loading rates, and a determination of agronomic rates.	ECAP Knowledgebase New Site or Facility Procedure	Audit
503.12(j) Any person who applies bulk sewage sludge subject to the CPLR in 503.13(b)(2) to the land shall provide written notice, prior to the initial application of bulk sewage sludge to a land application site by the applier, to the permitting authority for the State in which the bulk sewage sludge will be applied and the permitting authority shall retain and provide access to the notice. The notice shall include: 1) Location 2) Information on the person who will apply the bulk sewage sludge	ECAP Knowledgebase New Site or Facility Procedure	Regulatory inspection reports
503.12(i) Any person who prepares bulk sewage sludge that is applied to land in a State other than the State in which the bulk sewage sludge is prepared shall provide written notice, prior to the initial application of bulk sewage sludge to the land application site by the applier to the permitting authority for the state in which the bulk sewage sludge is proposed to be applied. The notice shall include: 1) Location 2) Approximate time period bulk sewage sludge will be applied to the site 3) Information for the person who prepares the bulk sewage sludge 4) Information for the person who will apply the bulk sewage sludge.	ECAP Knowledgebase New Site or Facility Procedure	Audit
NPDES VI.C.4.b.7.a The Discharger shall notify USEPA and the State (for both Discharger and use or disposal site) of any non-compliance within 24 hours, if the non-compliance may seriously endanger health or the environment. For other instances of non-compliance, the Discharger shall notify USEPA and the State of the non-compliance in writing within 5 working days of becoming aware of the non-compliance. The Discharger shall require their biosolids management contractors to notify USEPA and the State of any non-compliance within these same time-frames.	Biosolids management contract-required BCR Biosolids Response & Recovery Plan	Audit
NPDES VI.C.4.b.8, 503.18(a)(1), R18-9-1014 F The Discharger shall submit an annual biosolids report to the USEPA Region 9 Biosolids Coordinator, permitting authority, and applicable State regulatory agencies by February 19 of each year for the period covering the previous calendar year. See each of the sections for a complete list of required information.	Annual Report	Audit
R18-9-1003 E The land owner or lessee of land on which bulk biosolids, that are not exceptional quality biosolids, have been applied shall notify any		Audit

subsequent land owner or lessee of all previous land applications of biosolids and shall disclose any site restrictions listed in R18-9-1009 that are in effect at the time the property is transferred.	Biosolids management contract-required BCR Regulatory Requirements table	
R18-9-1014 D A bulk applicator of biosolids other than exceptional quality biosolids shall report to the Department if 90% or more of any cumulative pollutant loading rate has been used at a site.	Contractor's Annual Report	- Regulatory inspection reports - OC San inspection - OC San review of Contractor annual report - Audit
R18-9-1014 G All annual self-monitoring reports shall contain the following certification statement signed by a responsible official: *"I certify, under penalty of law, that the information and descriptions, have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."*	NANI Annual Report	Audit

Composting

EPA Code of Federal Regulations Title 40 Part 503 (503)
Arizona Department of Environmental Quality, AZDEQ Title 18, Ch. 9, Article 10 (R18-9)

OC San informs Biosolids Contractors of OC San's requirements through the service contract and the Biosolids Contractor Requirements (BCR) document. OC San performs periodic site inspections, infrequent internal audits, and requires monthly reports and current Contractor Biosolids Management Plans (BMPs). If applicable, OC San's Contractors demonstrate how they meet the following requirement as noted below.

Rule	Record/Report	Verification
R18-9-1006 B Biosolids that are sold or given away in a bag or other container for land application, or that are applied on a lawn or home garden, shall meet the Class A pathogen reduction requirements established in subsection (D)	Contractor monthly report	- OC San quarterly report review - Pre-inspection COP - Audit
503.32(a)(1) The requirement in 503.32(a)(2) and the requirements in either 503.32(a)(3), (a)(4), (a)(5), (a)(6), (a)(7), or (a)(8) shall be met for a sewage sludge to be classified Class A with respect to pathogens	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.32(a)(2) The Class A pathogen requirements in 503.32(a)(3) through (a)(8 shall be met either prior to meeting or at the same time the vector attraction reduction requirements in 503.33, except the vector attraction reduction requirements in 503.33(b)(6) through (b)(8)	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.32(a)(7); R18-9-1006 D Class A – Alternative 5.	Contractor monthly report	

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. Bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), (c), (e), or (f). (ii) Sewage sludge that is used or disposed shall be treated in one of the processes to Further Reduce Pathogens described in Appendix B of this part.		OC San quarterly report review Pre-inspection COP Audit
R18-9-1012 A – *AZ Composting only.* The person who prepares the biosolids shall conduct self-monitoring events at the frequency listed in Table 5 for the pollutants listed in R18-9-1005, the pathogen reduction in R18-9-1006 and the vector attraction reduction requirements in R18-9-1010. Amount of BS prepared (dry tons/metric tons per 365 day period) / Frequency 0< X >319.6/290 / 1/year 319.6/290 =/< X >1,653/1,500 / 1/quarter 1,653/1,500 =/< X >16,530/15,000 / 1/60 days =/> 16,530/15,000 / 1/month	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
R18-9-1012 C A person who prepares biosolids shall submit additional or more frequent biosolids samples, collected and analyzed during the reporting period, to the Department with the regularly scheduled data required in Subsection A.	Contractor monthly report Biosolids management contract-required BCR/ Regulatory Requirements table	OC San quarterly report review Pre-inspection COP Audit
503 Appendix B(B)(1) Process to Further Reduce Pathogens; R18-9-1006 D(5) Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for 3 days. Using the windrow composting method, the temperature of the sewage sludge is maintained at 55 degrees or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees or higher, there shall be a minimum of 5 turnings of the windrow.	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.13(a)(3) and (4) If bulk sewage sludge is applied to a lawn or a home garden, or sold or given away in a bag or other container for application to the land, the concentration of each pollutant in the sewage sludge shall not exceed the concentrations for the pollutant in Table 3 of 503.13.	Contractor monthly report Upstream OC San controls such as NANI and Source Control program	OC San quarterly report review Pre-inspection COP Audit
503.15(a)(2) The Class A pathogen requirements in 503.32(a) shall be met when bulk sewage sludge is applied to a lawn or a home garden.	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.15(a)(3) The class A pathogen requirements in 503.32(a) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.	Contractor monthly report	OC San quarterly report review

		Pre-inspection COP Audit
503.15(c)(2) One of the vector attraction reduction requirements in 503.33(b)(1) through (b)(8) shall be met when bulk sewage sludge is applied to a lawn or a home garden	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.15(c)(3) One of the vector attraction reduction requirements in 503.33(b)(1) through (b)(8) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.16(a)(1) The frequency of monitoring for the pollutants listed in Table 1-4 of 503.13; the pathogen density requirements in 503.32(a) and in 503.32(b)(2)through (b)(4); and the vector attraction reduction requirements 503.33(b)(1) through 503.33(b)(8) shall be the frequency in Table 1 of 503.16.	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.33(a)(2) One of the vector attraction reduction requirements in 503.33(b)(1) through (b)(8) shall be met when bulk sewage sludge is applied to a lawn or a home garden.	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
R18-9-1010 B Biosolids that are sold or given away in a bag or other container or are applied to a lawn or home garden, shall meet one of the vector attraction reduction alternatives established in subsections (A)(1) through (A)(8)	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.33(b)(5), R18-9-1010 A(5) Sewage sludge 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.	Contractor monthly report	OC San quarterly report review Pre-inspection COP Audit
503.14(e); R18-9-1007 B Either a label shall be affixed to the bag or other container in which sewage sludge that is sold or given away for application to the land, or an information sheet shall be provided to the person who receives sewage sludge sold or given away in another container for the application to the land. The label or information sheet shall contain the following information: 1) Name and address of preparer 2) A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet. 3) The annual whole sludge application rate for the sewage sludge that does not cause any of the annual pollutant loading rates in Table 4 of 503.13 to be exceeded. *See R18-9-1007 B for slightly different wording.*	Contractor BMP	Inspection COP Audit
R18-9-1013 A	Contractor BMP	Audit

A person who prepares biosolids shall collect and retain the following information for at least 5 years 1) The date, time, and method used for each sampling activity and the identity of the person collecting the sample; 2) The date, time , and method used for each sample analysis and the identity of the person conducting the analysis; 3) The results of all analyses of pollutants regulated under R18-9-1005 and organic and ammonium nitrogen to comply with R18-9-1007 A(7); 4) The results of all pathogen density analyses and applicable descriptions of the methods used for pathogen treatment in R18-9-1006; 5) A description of the methods used, if any and the operational values and ranges observed in any pre-land application, vector attraction reduction activities required in R18-9-1010A; and 6) For the records described in subsections A(1) through A(5), the following certification statement signed by a responsible official of the person who prepares the biosolids: *"I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."*		

Class B Biosolids Land Application

EPA Code of Federal Regulations Title 40 Part 503 (503)
Arizona Department of Environmental Quality, AZDEQ Title 18, Ch. 9, Article 10 (R18-9)

OC San informs Biosolids Contractors of OC San's requirements through the service contract and the Biosolids Contractor Requirements (BCR) document. OC San performs periodic site inspections, infrequent internal audits, and requires monthly reports and current Contractor Biosolids Management Plans (BMPs). If applicable, OC San's Contractors demonstrate how they meet the following requirement as noted below.

Rule	Record/Report	Verification
503.12(a) No person shall apply sewage sludge to the land except in accordance with the requirements in this subpart (503.12-General requirements).	ADEQ registration letter, Biosolids management contract-required BCR	Inspection Audit
R18-9-1003 D The applicator shall not receive bulk biosolids without prior written confirmation of the filing of a "request for Registration" under R18-9-1004	ADEQ registration letter, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1004 A Any person intending to land-apply bulk biosolids in Arizona shall submit, on a form provided by the Department, a completed "Request for Registration"	ADEQ registration letter, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1004 B An applicator shall not engage in land application of bulk biosolids, unless the applicator has obtained a prior written acknowledgement of the Request for Registration or a supplemental request from the Department.	ADEQ registration letter, Biosolids management contract-required BCR	Regulatory inspection reports Audit
503.12(e)(1) The person who applies sewage sludge to the land shall obtain information needed to comply with the requirements in this subpart.	NANI, Biosolids management contract-required BCR	

		Regulatory inspection reports Audit
R18-9-1006 A(2) An applicator shall ensure that all biosolids applied to land meet Class A or B pathogen reduction requirements at the time the biosolids are land applied.	Biosolids management contract-required BCR OC San Biosolids IERP: OC San immediately notifies Contractor if OC San's biosolids time or temperature did not meet requirements so that the Contractor can divert the load.	Regulatory inspection reports Audit
503.12(b), R18-9-1005 No person shall apply bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2)(Table 2-Cumulative pollutant loading rates) to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in 503.13(b)(2) has been reached.	NANI, Biosolids management contract-required BCR, Contractor Annual Report	Regulatory inspection reports Audit
503.12(h), R18-9-1014 C The person who applies bulk sewage sludge to the land shall provide the owner or lease holder of the land on which the bulk sewage sludge is applied notice and necessary information to comply with the requirements in this subpart (503 general requirements, R18-9-1005 pollutant concentrations, loading rates, R18-9-1009 site restrictions).	Contractor BMP, –Contractor Annual Report	Regulatory inspection reports Audit
503.14(a), R18-9-1002 F Bulk sewage sludge shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.	Contractor BMP, Biosolids management contract-required BCR	Audit
503.14(b) Bulk sewage sludge shall not be applied to agricultural land, forest, a public contact site or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters of the United States, as defined in 40 CFR 122.2, except as provided in a permit issued pursuant to section 402 or 404 of CWA.	Contractor BMP, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(9) The applicator shall not apply bulk biosolids to land that is flooded, frozen, or snow-covered, so that the bulk biosolids enter the wetland or other navigable waters, except as provided in an AZPDES permit or a permit issued under section 402 of the Clean Water Act.	Contractor BMP, Biosolids management contract-required BCR	Regulatory inspection reports Audit
503.14(c), R18-9-1007 Bulk sewage sludge shall not be applied to agricultural land, forest, or a reclamation site that is 10 meters (33 feet) or less from waters of the US, as defined in 40 CFR 122.2, unless otherwise specified by the permitting authority.	Contractor BMP, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1012 - 1013 An applicator shall conduct and record monitoring of each site for the management practices established in R18-9-1007 and R18-9-1008	Contractor BMP, Biosolids management contract-required BCR, Contractor BMP	Regulatory inspection reports Audit
503.14(d), R18-9-1007 A(7), & NPDES D.1.e Bulk sewage sludge shall be applied to agricultural land, forest, a public contact site, or a reclamation site at a whole sludge application rate that is equal to or less than the agronomic rate for the bulk sewage sludge, unless, in the case of a reclamation site, otherwise specified by a permitting authority.	Contractor BMP, Biosolids management contract-required BCR, Contractor BMP	Regulatory inspection reports Audit

503.15(a)(1) The Class A pathogen requirements in 503.32(a) or the Class B pathogen requirements and site restrictions in 503.32(b) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.	Contractor BMP, Biosolids management contract-required BCR	Audit
503.33(10)(i), R18-9-1010 A(10) – *Optional, only if VSR not met* Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.	Contractor BMP. Tule does 6-hour incorporation routinely, not as-needed.	Regulatory inspection reports Audit
503.32(b)(5)(i); R18-9-1009 A(1)(a) Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.	Biosolids management contract-required BCR, No food crops grown	Regulatory inspection reports Audit
503.32(b)(5)(ii); R18-9-1009 A(1)(b) Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil.	Biosolids management contract-required BCR, No food crops grown	Regulatory inspection reports Audit
503.32(b)(5)(iii); R18-9-1009 A(1)(c) 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 4 months prior to incorporation into the soil.	Biosolids management contract-required BCR, No food crops grown	Regulatory inspection reports Audit
503.32(b)(5)(iv); R18-9-1009 A(1)(d) Food crops, feed crops, and fiber cops shall not be harvested for 30 days after application of sewage sludge.	Biosolids management contract-required BCR, Crops harvested after growing cycle completed	Regulatory inspection reports Audit
503.32(b)(5)(v); R18-9-1009 A(1)(e) Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.	Biosolids management contract-required BCR	Regulatory inspection reports Audit
503.32(b)(5)(vi); R18-9-1009 A(1)(f) Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.	Biosolids management contract-required BCR	Audit
503.32(b)(5)(vii); R18-9-1009 A(2)(a) Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge.	Biosolids management contract-required BCR	Audit
503.32(b)(5)(viii); R18-9-1009 A(2)(b) Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.	Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(1) Biosolids not EQ cannot be applied to soil with a pH < 6.5. Refer to R18-9-1006 for options if pH is < 6.5.	Contractor soil testing, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(2) Biosolids can not be applied to land with slopes greater than 6% unless operating under AZPDES permit or a permit issued under CWA section 402.	Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(3) The applicator shall not apply bulk biosolids to land under the following conditions:	Contractor BMP, Biosolids management contract-required BCR	Regulatory inspection reports Audit

a) Bulk biosolids with Class A pathogen reduction if the depth to groundwater is 5 ft or less b) Bulk biosolids with Class B pathogen reduction (i) If the depth to groundwater is 10 ft or less; or (ii) To gravel, coarse or medium sands, or sands with less than 15% coarse fragments, if the depth to groundwater is 40 ft or less from the point of application of biosolids.		
R18-9-1007 A(4) The applicator shall not apply bulk biosolids to land that is 32.8 ft (10 meters) or less from navigable waters.	Contractor BMP, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(5) Can not apply or store bulk biosolids closer than 1000 ft from public or semi-public drinking water supply well or no closer then 250 ft from any other water well.	Contractor BMP, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(6) Cannot store or apply bulk biosolids within 25 ft of public right-of-way or private property unless applier receives permission to apply bulk biosolids from the land owner or lessee of the adjoining property.	Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(10) The applicator shall not apply any additional bulk biosolids before a crop is grown on the site if the site has received biosolids containing nitrogen at the equivalent of the agronomic rate appropriate for that crop.	Contractor BMP, Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(11) The biosolids applier shall not exceed the irrigation needs of the crop of an application site.	Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(12) To minimize odors, do not apply biosolids within 1000 ft of a dwelling unless the biosolids are injected or incorporated into the soil within 10 hours of application.	Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1007 A(13) The applicator shall not store bulk biosolids within 1000 ft of a dwelling unless the applicator obtains permission from the dwelling owner or lessee to store the biosolids at a shorter distance from the dwelling. If the dwelling owner or lessee changes, the applicator shall obtain permission from the new dwelling owner or lessee to continue to store bulk biosolids within 1000 ft of the dwelling or move the biosolids to a location at least 1000 ft from the dwelling.	Biosolids management contract-required BCR	Regulatory inspection reports Audit
R18-9-1013 B An applicator of bulk biosolids, except exceptional quality biosolids, shall collect the following information for each land application site, and, except as indicated in subsection B(6), shall retain this information for at least 5 years: 1) The location of each site, by either street address or latitude and longitude; 2) The number of acres or hectares; 3) The date and time the biosolids were applied; 4) The amount of biosolids (in dry metric tons); 5) The biosolids loading rates for domestic septage and other biosolids with less than 10% solids in tons or kg of biosolids per acre or hectare and in gallons per acre and the biosolids loading rates for other biosolids in tons or kilograms of biosolids per acre or hectare;	ADEQ Initial Regulatory Approval Letter Contractor Annual Report OC San Inspections Contractor Biosolids Management Plan	Regulatory inspection reports Audit

6) The cumulative pollutant levels of each regulated pollutant (in tons or kg per acre or hectare). The applicator shall retain these records permanently; 7) The results of all pathogen density analyses and applicable descriptions of the methods used for pathogen treatment in R18-9-1006; 8) A description of the activities and measures used to ensure compliance with the management practices in R18-9-1007 and R18-9-1008, including information regarding the amount of nitrogen required for the cop grown on each site: 9) If vector attraction reduction was not met by the person who prepares the biosolids, a description of the vector attraction reduction activities used by the applicator to ensure compliance with the requirements in R18-9-1010; 10) A description of any applicable site restriction imposed by in R18-9-1009 if biosolids with Class B pathogen reduction have been applied and documentation that the applicator has notified the land owner and lessee of these restrictions; 11) For the records described in subsections B(1) through B(8), the following certification statement signed by a responsible official of the applicator of the biosolids: *"I certify, under penalty of law, that the information and descriptions, have been made under my direction and supervision and under a system designed to evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."* *12)* The information in subsections A(1) through A(6) if the person who prepares the biosolids is not located in this state.		

AB-901 (Recycling & Disposal Facility Reporting– OC San CalReycle Requirements

AB-901
California Code of Regulations, Title 14, Division 7, Chapter 9, Article 9.2, commencing with section 18800.

Rule	Record/Report	Verification
(a) A reporting entity meeting the criteria in subsection (b) shall register and report on the materials or mixtures or combinations thereof listed in subsection (a)(1). Entities are not required to register and report for the activities listed in subsection (c). (I) Solids (b) Entities require to report: (1)Permitted disposal facilities that dispose of or beneficially reuse any tonnage with a Registration, Standardized, or Full Permit, including, but not limited to: (A) Solid waste landfills, (B) Engineered municipal solid waste (EMSW) conversion facilities, (C) Transformation facilities, (D) Inert debris Type A/Type B disposal facilities, (E) CDI waste disposal facilities, (F) Industrial waste co-disposal facilities, and (G) Waste tire disposal facilities.		

(2) Haulers, including, but not limited to: (A) Contract haulers who haul 100 or more tons of materials described in subsection (a)(1) out-of-state per quarter, (B) Contract haulers who haul 50 or more tons of organics for direct land application per quarter in accordance with section 17852(a)(24.5) of this division, and (C) Food waste self-haulers. (3) Transfer/processing facilities and operations, including Enforcement Agency Notification, Registration, Standardized, and Full Permit, that exclusively transfer or process 2,500 or more tons of CDI per quarter, or transfer or process 100 or more tons of other materials described in subsection (a)(1) per quarter, including, but not limited to: (A) Contaminated soil operations, (B) Inert debris processing facilities Type A, (C) Inert debris processing facilities Type B, (D) Inert debris Type A processing operations, (E) Nonhazardous ash transfer/processing operations, (F) Small volume CDI debris processing operations, (G) Medium volume CDI debris processing facilities, (H) Large volume CDI debris processing facilities, (I) Limited volume transfer/processing operations, (J) Small volume transfer stations, (K) Medium volume transfer/processing facilities, (L) Large volume transfer/processing facilities, (M) Secondary material processing facilities and operations, (N) Glass container processing operations, (O) Direct transfer facilities, (P) Sealed container transfer operations, and (Q) Mixed waste processing facilities, and material recovery facilities, that require a solid waste facilities permit.		

Notes:

- OC San's current NPDES permit was issued in 2012 with a final adoption expected in 2021.
- Regulations included in this list are only those identified as directly relating to OC San's biosolids production and management, and under direct OC San oversight. This list does not include those regulations affecting other portions of the wastewater treatment process (such as 40 CFR 403). Other related regulations include those that apply to and are monitored by our contractors (e.g. DOT, landfill site management regulations).
- Digester Cleanings are considered by EPA to be biosolids, and OC San manages its digester cleanings as biosolids (recycled and not typically put into a landfill). As such, in 2015, the Environmental Compliance manager decided that separate digester cleaning sampling would not occur for metals and other constituents because digester cleanings are covered as part of OC San's routine biosolids sampling procedures.
- OC San's digester cleaning contract requires contractor to discharge less than 1,000 mg/L TSS to internal system because it can impact plant operations.
- Internal cross-reference: Critical Control Points Table: http://myocsd/es/Compliance/biosolids/Links/Critical_Control_Points.html
- Regulations considered but not included in the above list:
  - State Water Resources Control Board's Water Quality Order No 2004-12-DWQ (California General Order) – Regulates beneficial re-use of biosolids in California. The restrictions are covered in our NPDES permit issued by the Regional Water Quality Control Board. As confirmed with Julio Lara on 1/10/14, the General Order is not enforceable or applicable to us.
  - California AB341 (adopted in 2012) – Mandates a 75% recyclables diversion away from landfills by 2020. While this applies to OC San and the management of biosolids at the Prima Deshecha Landfill, this management option being done under current directive until 2017 when the centrifuge projects are complete.
- Contact Safety Division Staff for any regulatory questions related to health, safety or OSHA requirements.
- Contact Air Quality staff with any regulatory questions related to air quality permits and regulations.

Glossary of Terms

BCR: Biosolids Contractor Requirements document located online at www.ocsan.gov/bcr.
Biosolids Monthly Compliance Report (formerly NANI): OC San's monthly compliance report that summarizes the key compliance parameters for recycling biosolids. These reports are officially submitted to EPA on an annual basis, and each month are posted on www.ocsan.gov/regdata.
BTS: OC San's customized Biosolids Tracking System is the online database that tracks OC San biosolids loads and allows OC San and Contractor to approve/deny/comment on load tickets.
BRRP: Biosolids Response and Recovery Plan is the emergency procedures for responding to biosolids transportation incidents that is followed by our biosolids hauling contractors.
COP: Contractor Oversight Plan is the document where Biosolids Compliance group review and plan before inspections.
CPLR: Cumulative Pollutant Loading Rate as referenced in biosolids regulations.
ECAP: Environmental Compliance Awareness Program is an internal OC San online tool for documenting, tracking, monitoring, and reminding staff about compliance obligations.
IERP: Integrated Emergency Response Plan is an OC San-wide document for emergency response planning.
LIMS: OC San's Laboratory Information Management System is a database for managing lab/monitoring activities and data.
LIMS Product Specifications: LIMS' product specifications define result level constraints such as regulatory and process limits. They are specific to the matrix (product), sampling point, analysis and component/parameter.
MSO: OC San's Monthly Summary of Operations is a summary of the plants' operational parameters including key biosolids parameters such as digester detention times and temperature among hundreds of other data sets within the report.
NANI: Named for the regulation requiring "Notice and Necessary Information," OC San is now calling this report "Monthly Biosolids Compliance Reported Report Limits" OC San's monthly compliance report that summarizes the key compliance parameters for recycling biosolids. These reports are officially submitted to EPA on an annual basis.
NPDES Ocean Discharge Permit: EPA and Santa Ana Regional Water Quality Control Board jointly issued permit governing OC San's discharge and related activities. OC San's current NPDES permit was issued in 2012 with a final adoption expected in 2021.
OMaP: OC San's customized database of SOPs for Operations division.
SCADA: A generic term used for OC San's "supervisory control and data acquisition" system, which is a category of software application program for process control, the gathering of data in real time from remote locations in order to control equipment and conditions. OC San staff interchangeably use CRISP and can more specifically call it WonderWare.
SOP: Standard operating procedure. See OMaP for OC San specific reference.
VSR: Volatile solids reduction.

Revisions Log

4/5/21 CV: Changed Logo and OCSD to OC San. Reinserted into to BCR

9/22/20 deb: Minor updates changing quarterly reports to monthly, NPDES permit timing, deleting active comments for 10/20 BCR update.

9/10/18 DEB: Finalized update for issuing with biosolids audit scope. Added Table of Contents and Glossary of Terms. Added landfill links and regulatory references. Added column to flag for audits. Reviewed and updated all items for accuracy of process. Addressed change process formerly referred to as "new site checklist." Added into Notes section mention of digester cleanings as Biosolids per 2015 Environmental Compliance decision to no longer sample and analyze separate digester cleaning samples, per EPA direction that they are considered biosolids, and digester cleaning contract internal process discharge limit.

8/29/17 RV: The Requirements for Testing List requires update to reflect the changes made during the 2016-2017 analytical requirements review (and resulting changes to the analytical suite).

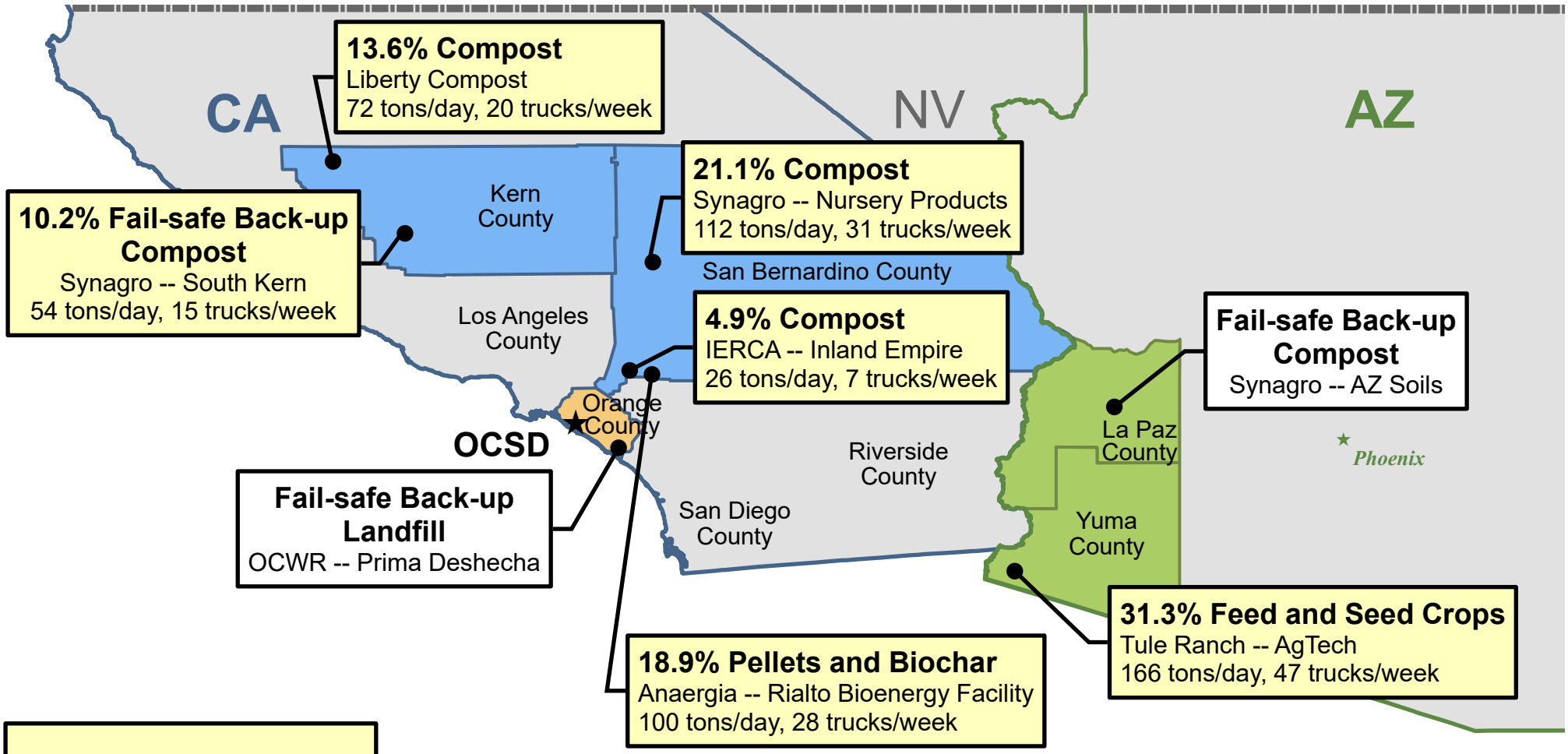
7/21/16 RV: Updated link due to 2016 reorg (EC from Eng to ES dept).

3/2/15 RV: added CEQA reference to additional requirements. Still working on better management of CEQA for biosolids/EC. [3/13/18: CEQA tracking process project deferred in Project Tracker.]

III.B. 1. OC San Biosolids Distribution Map

Orange County Sanitation District – Biosolids Management

Biosolids Allocations by Contractor Facility



Allocations Based on:
530 Tons per day
148 Trucks per week

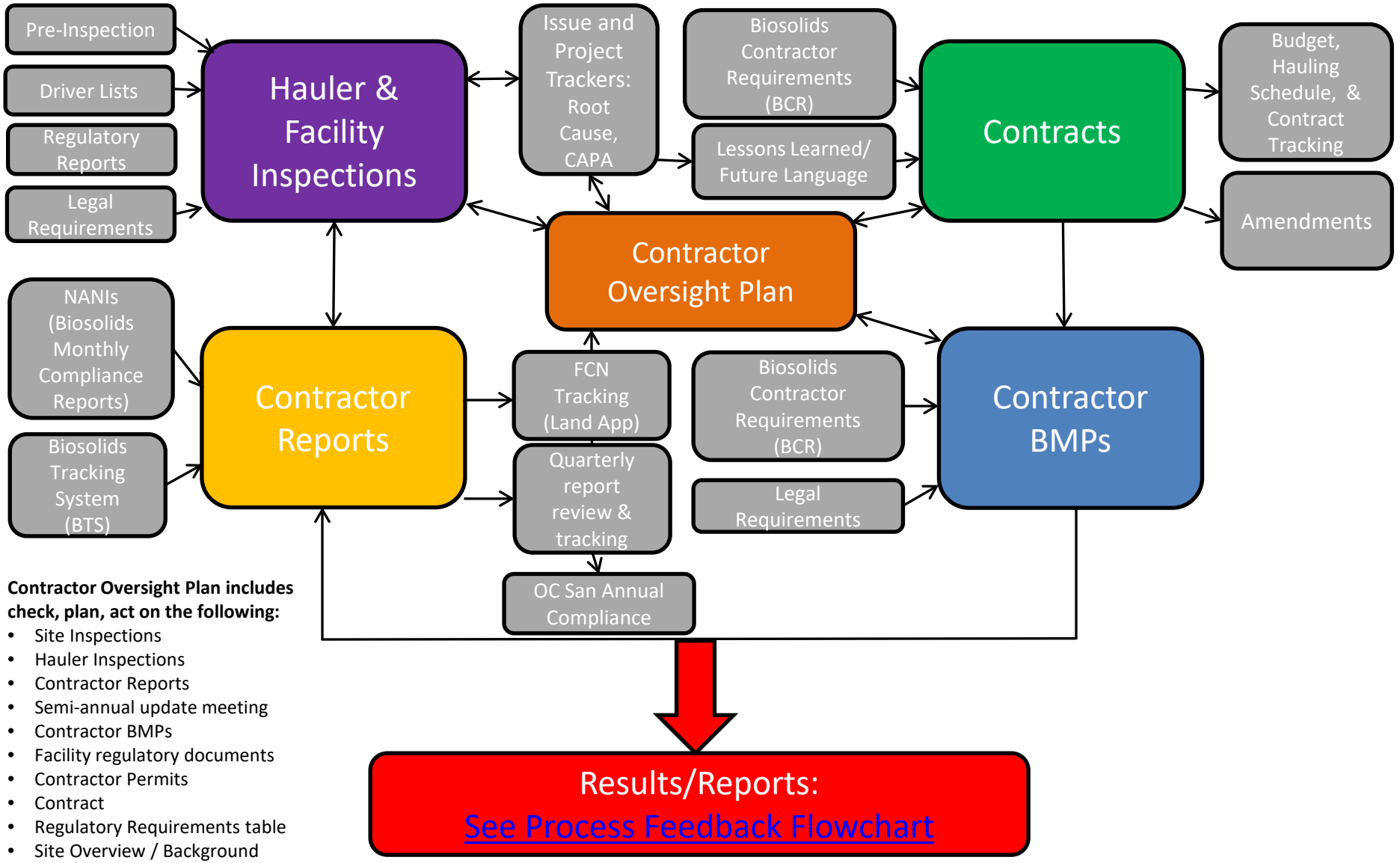
Schedule Effective 12/16/21
Revised: 12/06/2021

OC SAN
ORANGE COUNTY SANITATION DISTRICT

III.B. 2. Contractor Oversight Flow Chart

Contractor Oversight:
Plan, Do, Check, Act

OC SAN
ORANGE COUNTY SANITATION DISTRICT



Contractor Oversight Plan includes check, plan, act on the following:

- Site Inspections
- Hauler Inspections
- Contractor Reports
- Semi-annual update meeting
- Contractor BMPs
- Facility regulatory documents
- Contractor Permits
- Contract
- Regulatory Requirements table
- Site Overview / Background

III.C. 1. Monthly Compliance Report aka "Notice and Necessary Information"

ORANGE COUNTY SANITATION DISTRICT

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: January 1- 31, 2021

This notice and necessary information demonstrates compliance with requirements of the Code of Federal Regulations Title 40 Part 503 and the Arizona Administrative Code Title 18, Chapter 9, Article 10 for land application pollutant concentrations, Class B pathogen reduction via anaerobic digestion (40CFR 503.32(b)(3)(A)(3), AAC R18-9-1006(E)(5)), and vector attraction reduction via volatile solids reduction (40CFR 503.33(b)(1), AAC R18-9-1010(A)(1)).

Sampling date(s): 01/12/21, 01/19/21

	Mercury (mg/kg dry)	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Molybdenum (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Zinc (mg/kg dry)	Ammonia Nitrogen (mg/kg dry)	Organic Nitrogen (mg/kg dry)	Total Nitrogen (mg/kg dry)	pH	Total Solids (%)	VSR (%)
Plant 1 Max/Min*	0.75	16	1.2	49	530	5.0	18	37	7.6	840	8,400	46,000	53,000	8.1	23	60
Plant 1 Avg	0.69	14	1.2	48	520	4.7	17	37	6.9	820	8,000	44,000	52,000		23	
Plant 2 Max/Min*	0.54	19	2.2	48	440	6.5	20	28	9.4	760	6,800	43,000	48,000	8.0	27	66
Plant 2 Avg	0.48	18	2.2	48	440	5.5	19	28	8.4	730	6,000	40,000	46,000		27	
Table 1 (Max/Min)*	57	75	85	3000	4300	840	75	420	100	7500	N/A	N/A	N/A	6.5	15	38
Table 3 (Avg)	17	41	39	N/A	1500	300	N/A	420	100	2800	N/A	N/A	N/A	N/A	N/A	N/A

OCSD Plant 1	System Summary	Dig. 7	Dig. 8	Dig. 9	Dig. 10	Dig. 11	Dig. 12	Dig. 13	Dig. 14	Dig. 15	Dig. 16
Minimum Mean Cell Residence Time (Min 15 days)**	27	28	27	Out of Service	26	27	26	26	26	26	26
Minimum Temperature (Min 95 °F)	97	99	99	Out of Service	99	97	98	98	98	97	98

OCSD Plant 2	System Summary	Dig. C	Dig. D	Dig. E	Dig. F	Dig. G	Dig. H	Dig. I	Dig. J	Dig. L	Dig. M	Dig. N	Dig. O	Dig. P	Dig. Q	Dig. R	Dig. S	Dig. T
Minimum Mean Cell Residence Time (Min 15 days)**	31	32	Out of Service	32	Out of Service	31	31	Out of Service	Out of Service	32	32	31	Out of Service	31	31	31	Out of Service	31
Minimum Temperature (Min 95 °F)	98	99	Out of Service	99	Out of Service	100	99	Out of Service	Out of Service	99	98	98	Out of Service	98	99	100	Out of Service	100

DNQ (Detected, Not Quantified) represents estimated values above the method detection limit (MDL), but below the reporting limit (RL). * Maximum values are reported for metals and nitrogen parameters; minimum values are reported for pH, volatile solids reduction (VSR) and total solids. Analysis of pH is conducted to comply with AAC R18-9-1007(A)(1). The limit for total solids applies only if biosolids are sent to a California landfill, per CCR Title 27 Section 20220(c)(3).

** MCRT based on a 15-Day Rolling Average.

ORANGE COUNTY SANITATION DISTRICT

Biosolids Monthly Compliance Report

Facility Name: Orange County Sanitation District Reclamation Plant #1, Fountain Valley, CA and Treatment Plant #2, Huntington Beach, CA

Monitoring Period: January 1- 31, 2021

Certifications:

NPDES permit: *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 the 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.*

503 Class B: *I certify, under penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirement in 503.33(b)(1) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Arizona Class B: *I certify, under penalty of law, that the pollutant analyses and the description of pathogen treatment and vector attraction reduction activities have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information used to determine whether the applicable biosolids requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.*

Jim Spears (Apr 14, 2021 15:00 PDT)

Jim Spears — jspears@ocsan.gov
Operations Manager — (714) 593-7081

Lan Wiborg (Apr 14, 2021 15:02 PDT)

Lan C.Wiborg — lwiborg@ocsan.gov
Environmental Services Director — (714) 593-7540

Cindy Vellucci (Apr 12, 2021 14:55 PDT) — Cindy Vellucci

Deirdre Bingman (Apr 13, 2021 08:46 PDT) — Deirdre Bingman

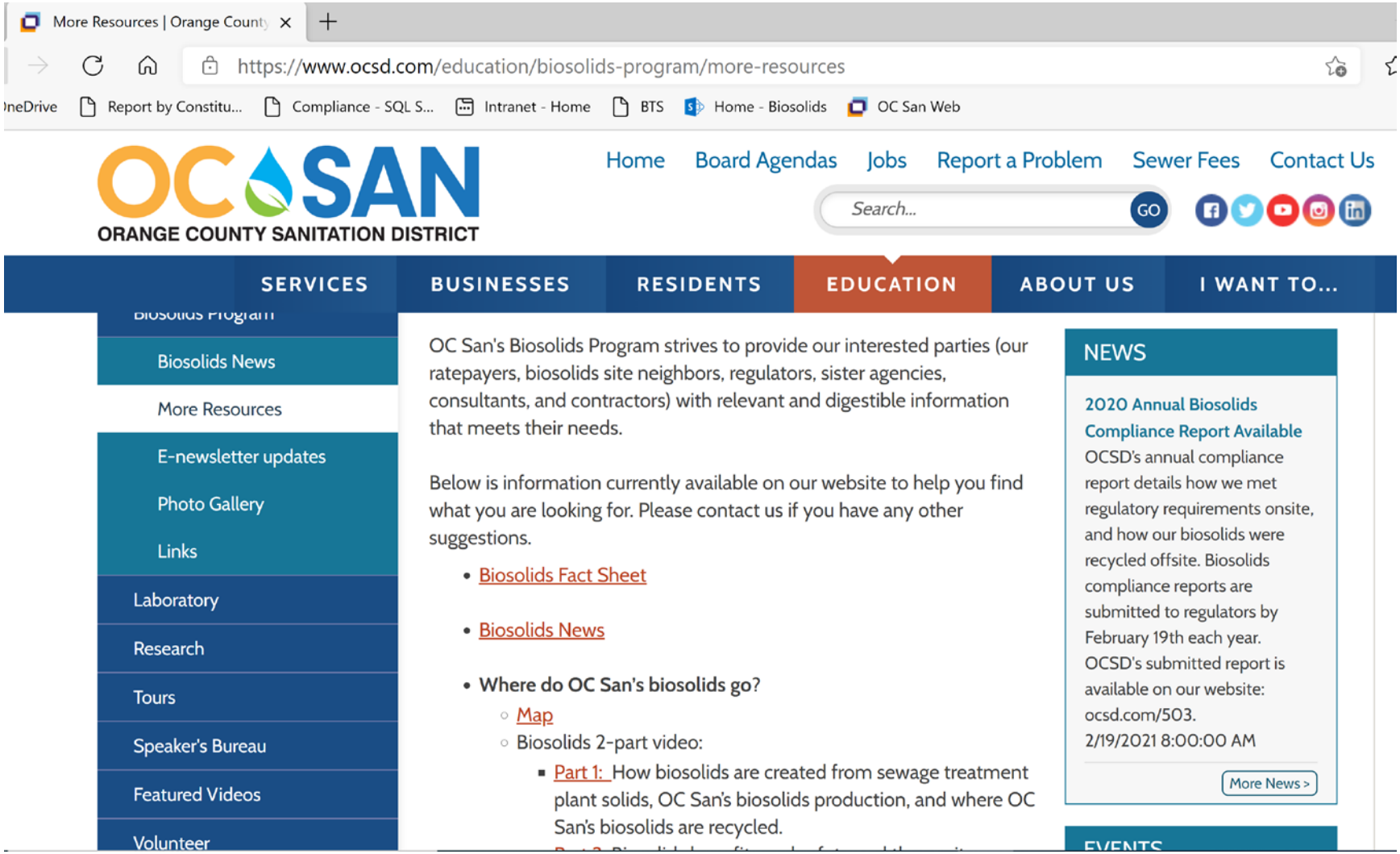
Rachel Van Exel

Reza Sobhani (Apr 14, 2021 14:00 PDT) — Reza Sobhani

III.C. 2. Laboratory Reports

OC San's contract-laboratory reports for all biosolids sampling are available upon request.

III.D. 1. Biosolids Internet Webpage


More Resources | Orange County
https://www.ocsd.com/education/biosolids-program/more-resources
OneDrive
Report by Constitu...
Compliance - SQL S...
Intranet - Home
BTS
Home - Biosolids
OC San Web
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ORANGE COUNTY SANITATION DISTRICT
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Biosolids News
More Resources
E-newsletter updates
Photo Gallery
Links
Laboratory
Research
Tours
Speaker's Bureau
Featured Videos
Volunteer
OC San's Biosolids Program strives to provide our interested parties (our ratepayers, biosolids site neighbors, regulators, sister agencies, consultants, and contractors) with relevant and digestible information that meets their needs.
Below is information currently available on our website to help you find what you are looking for. Please contact us if you have any other suggestions.
Biosolids Fact Sheet
Biosolids News
Where do OC San's biosolids go?
Map
Biosolids 2-part video:
Part 1: How biosolids are created from sewage treatment plant solids, OC San's biosolids production, and where OC San's biosolids are recycled.
NEWS
2020 Annual Biosolids Compliance Report Available
OCSD's annual compliance report details how we met regulatory requirements onsite, and how our biosolids were recycled offsite. Biosolids compliance reports are submitted to regulators by February 19th each year. OCSD's submitted report is available on our website: ocsd.com/503.
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