

**Audit of Utilities' Handling,
Management, Disposal
and Land Application
of Biosolids**



**Phil Diamond, CPA
County Comptroller
Orange County, Florida**

www.occompt.com



**Report No. 505
October 2023**

County Audit Division

Wendy Kittleson, CPA, CISA, CIA
Assistant Comptroller

Lisa Fuller, CISA, CIA
Director

Erin Boley, CPA, CIA
Deputy Director

Audit Team

Christina Eng
Senior Auditor

Orange County Comptroller's Office

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The mission of the Orange County Comptroller's Office is to serve the citizens of Orange County and our customers by providing responsive, ethical, effective, and efficient protection and management of public funds, assets, and documents, as specified in the Florida Constitution and Florida Statutes.

Vision

The vision of the Orange County Comptroller's Office is to be recognized as a highly competent, cohesive team leading the quest for continuing excellence in the effective safeguarding and ethical management of public funds, assets, and documents.



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OFFICE OF THE COMPTROLLER

**ORANGE
COUNTY
FLORIDA**

PHIL DIAMOND, CPA
County Comptroller
County Audit Division
Post Office Box 38
Orlando, FL 32802
Telephone: 407-836-5775
www.occompt.com

October 12, 2023

Jerry L. Demings, County Mayor
and
Board of County Commissioners

We have conducted an audit of Utilities' biosolids program. The audit was limited to a review of Utilities' handling, management, disposal and land application of biosolids. The period audited was January 2020 through October 2020.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Responses to our Recommendations for Improvement were received from the Director of Utilities and are incorporated herein.

We appreciate the cooperation of Utilities' personnel during the course of the audit.


Phil Diamond, CPA
County Comptroller

c: Byron Brooks, County Administrator
Jon V. Weiss, Deputy County Administrator
Ed Torres, Director, Utilities Department



Why This Audit Is Important

Biosolids are byproducts generated during the wastewater treatment process. During wastewater treatment the liquids are separated from the solids. Those solids are then treated physically and chemically to produce a semisolid, nutrient-rich product known as biosolids. Utilities recycles biosolids generated at wastewater treatment facilities for this beneficial use. Although biosolids provide benefits, regulatory requirements have been established to ensure that biosolids are processed, handled, disposed of, and land-applied appropriately to limit the potential risk to public health and the environment.

The Objective of Our Audit

The objective of the audit was to ensure that biosolids were handled, managed, disposed, and land-applied in accordance with Utilities' policies and state regulations.

What We Found

Documentation of Biosolid Hauling and Truck Inspection Records Were Not Adequately Maintained (Page 7).

Almost half (48%) of hauling records for three wastewater treatment facilities for the three months reviewed were missing at least one required element. Additionally, management could not provide any receipts from the land application site for biosolids transferred by one wastewater treatment facility.

Additionally, no truck inspection forms were maintained for one facility during the three months reviewed. Biosolids hauling records indicated that at least 100 hauls were completed in those three months.

Finally, one facility's inspection forms were pre-filled which may indicate that all inspection steps were not performed.

The Amount of Biosolids Land Applied Were Not Correctly Reported to FDEP (Page 8).

An incorrect quantity of land-applied biosolids was reported to FDEP for all three months reviewed for one of the three wastewater treatment facilities. The error occurred because an incorrect trailer size was used in the calculation of biosolids hauled.



Overall Evaluation (Page 6)

Based on the results of our testing, the handling, management, disposal, and land application of biosolids could be improved to ensure compliance with FDEP regulations. We noted areas of improvement in the Recommendations section of this report.



Background

Orange County Utilities has over 1,000 team members working to provide water resources and solid waste recovery services to the public. The Utilities' Water Reclamation Division provides environmentally safe wastewater treatment and operates and maintains four wastewater treatment facilities, as well as producing reclaimed water.

Biosolids are byproducts generated during the wastewater treatment process. During wastewater treatment the liquids are separated from the solids. Those solids are then treated physically and chemically to produce a semisolid, nutrient-rich product known as biosolids. They are high in organic content and contain moderate amounts of nutrients needed by plants. These characteristics make properly treated biosolids valuable as a fertilizer, subject to regulatory requirements that have been established to protect public health and the environment. Utilities recycles the biosolids generated at wastewater treatment facilities for this beneficial use. FDEP regulates the treatment, transfer, disposal, application, and reporting of biosolids.

Treatment: Biosolids are divided into Class AA (high quality), Class A (intermediate quality), and Class B (minimum quality) based on treatment methods. While Class A and AA biosolids are treated to eliminate pathogens, Class B biosolids are only treated to reduce pathogens. Treatment requirements for each class include pollutant limits, treatment to destroy harmful microorganisms, and management practices for land application sites.¹ Class B biosolids were only transported to land application sites by the southern regional wastewater treatment facility.

Transfer for Disposal, Further Treatment, or Land Application: The Water Reclamation Division contracts with a third party hauler to transport biosolids generated at the three wastewater treatment facilities. Biosolids are transported to the landfill for disposal, treatment facilities for further processing, or land application sites² for use as high quality fertilizer on agricultural lands. When a truck arrives and leaves a wastewater treatment facility, internal policy requires an

¹ Chapter 62-640, F.A.C

² Per Chapter 62-640.200, F.A.C, "Application site" means a property (such as a farm, a ranch or a mining property) where biosolids or septage are applied to land.



INTRODUCTION

inspection be completed. The inspection includes assessing the truck to ensure biosolids are not tracked off site during transport.

All biosolids hauled from a treatment facility require a corresponding hauling record. All hauling records are required to contain the following information:

- Date and time shipped and shipment ID;
- Amount of biosolids shipped;
- Degree of treatment, if applicable;
- Name and ID number of biosolids treatment facility;
- Signature of responsible party at source facility;
- Signature of hauler and name of hauling firm;
- Class of biosolids shipped (land applied only³); and,
- Name and ID number of permitted application site where biosolids are shipped (land applied only).

If the biosolids are transported to a permitted land application site, FDEP requires that “the (application) site manager shall provide a receipt to the treatment facility within 30 calendar days of delivery of the biosolids”. Additionally, “The treatment facility permittee shall report to the appropriate District Office of the Department within 24 hours of discovery of any discrepancy in delivery of biosolids leaving the treatment facility and arriving at the permitted application site.”

Reporting: Permitted wastewater treatment facilities are required to submit monthly Discharge Monitoring Reports (DMR) to FDEP. Treatment facilities that transfer, dispose, and/or land apply biosolids must include the total quantities of biosolids landfilled, transferred to another facility, and land applied for the reporting period.

Audit Scope

The audit scope was limited to procedures for safe handling, management, disposal and land application of biosolids. The audit period was January 2020 through October 2020.

³ Land applied biosolids are processed and recycled as high quality fertilizer used on agriculture lands.



Audit Objective

The objective of the audit was to ensure that biosolids were handled, managed, disposed of, and land-applied in accordance with Utilities' policies and state regulations.

Audit Methodology

To meet the audit objectives, we inspected permit records to confirm that the Orange County wastewater treatment facility permits specified the use or disposal of the facilities' biosolids.

Additionally, we reviewed records for a sample of three months in the testing period to confirm:

- Hauling records included the required elements;
- A hauling trailer inspection form was completed for each haul;
- Land applied biosolids were transferred to permitted land application sites and evidence of receipt by the land application sites were retained; and
- Biosolids transported and disposed of were accurately reported to the FDEP.

Overall Evaluation

Based on the results of our testing, the handling, management, disposal and land application of biosolids could be improved to ensure compliance with FDEP regulations. We noted areas of improvement in the Recommendations section of this report.



1. Biosolids Should Be Transported and Disposed of in Accordance with FDEP Requirements.

We reviewed three months of biosolid hauling records for all three wastewater treatment facilities. We noted that 48% of hauling records were missing one or more of the required elements. Missing elements included: the hauler's signature, amount of biosolids shipped, signature of responsible party at source facility, land application site, and/or class of biosolids shipped (land application only).

Hauling Records

Mann's Bulk Express, Inc. No 3131
3808 South 66th Street
Tampa, FL 33619
(813)374-0246 - Office (813)374-0247 - Fax
(813)2650-1177 or (863)698-0603 Cell

Date: 9/1/20 Time: 5:00

Transporters Name: Mann's Bulk Express, Inc.
Truck # 0227 Trailer # 1655
Transporters Signature: Harold

Generator: (Check One)
 FLA107972, Orange County, 4760 Sand Lake Rd., Orlando, FL, 32819

Residual Type: Liquid Residual Classification: Digested: A Residual Volume: Gallons: _____
Dewatered Digested: B Tons/Cubic Yards: _____

This certifies that wastewater residuals have been properly treated and stabilized according to rule 62-640 F.A.C. and 40 C.F.R. Also, this certifies that this is a full load being transported.

Plant Operator: Harold Valley Plant Operator: [Signature]

Greenfields Management Services - Agriculture Site Data

Site Location (Check One):
 Whaley, ID# FLA318728
 Monts De Oca, ID# FLA847241
 Deseret Ranch, ID# FLA581356
 B-Bar-J Ranch, (Polk) # FLA690163-002

T. Wayne Hill Trucking, Inc.
417 Bradshaw Industrial Pkwy • Bartow, FL 33830
Business: 863.519.6677 Mobile: 863.581.1016

DATE: 9/2/20 JOB NAME: North West
DRIVER: Keith TRUCK #: 27 TRAILER #: 21730

Load No.	Loaded	Customer Shipped	Destination of Load
1.		<u>CAKE</u>	<u>Solar Organic</u>
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Customer Signature: [Signature]

Temperature: _____ Weather Condition: _____ Field: _____ Site Location: _____ Water Table: _____

Invoice No. **105885**

Missing Quantity

At the time of our audit, only one facility transported biosolids to a permitted land application site. FDEP requires land application sites to provide a receipt to the treatment facility within 30 days after delivery to confirm the transport was received. Management could not provide any receipts from the land application site for the three months we reviewed. Without proper hauling records, discrepancies in the amounts of biosolids hauled from treatment facilities and received by land application sites cannot be investigated and reported.

Inspection of Vehicles Hauling Biosolids

FDEP requires that biosolids not be spilled or tracked off the treatment facility site by the hauling vehicle. The Water Reclamation Division's policy requires biosolid hauling vehicles to be inspected when entering and leaving facilities. The



inspection forms require that vehicles be checked to confirm that they are covered and their undercarriages, tires, wheels mud flaps, and trailer exteriors are clean of any biosolids before leaving the facility.

We reviewed a sample of inspection forms for three months and determined:

- One facility had no inspection forms for the three months sampled. However, biosolids hauling records indicated that at least 100 hauls were completed in that three month period.
- One facility's inspection forms were pre-filled which could indicate not all inspection steps were performed.

Without complete inspections, undetected issues with trailers could lead to spilling or tracking biosolids offsite.

FDEP Reporting

FDEP requires all treatment facilities to keep records and report monthly the quantities of biosolids generated, treated, landfilled, transferred to another facility, or land applied. We compared the quantities reported to FDEP with the hauling records of biosolids landfilled, transferred, or land applied for all three facilities for a three month sample period.

Only minor discrepancies were noted at two facilities. However, at the third facility, the incorrect quantity of biosolids land-applied was reported to FDEP for all three months. The error occurred because an incorrect trailer size was used in the calculation of biosolids hauled.

TRAILER INSPECTION FORM

South Water Reclamation Facility

CHECK TRAILER IN

Trailer **MUST** be checked in at the time of arrival by facility staff and contractor driver
 >>NO Exceptions<<

Trailer Number: 7615 Date In: 10-01-20 Time In: 8:00

Tarp Rolled Back (YES / NO) Air Couplings & Electrical Plug OK / Damaged

Landing Gear Working (YES / NO) Landing Gear Condition (OK / Damaged)

Tires Checked (YES / NO) Brakes Checked (YES / NO)

Tailgate & Tailgate Safety Locks Checked (YES / NO)

Operator Signature: [Signature]

Driver Signature: [Signature]

All Trailers **MUST** be washed out inside, undercarriage, tires, wheels and mud flaps
 BEFORE leaving the Land Application Site.
 No trailer will be loaded if not properly washed out.

TRAILER CHECK OUT

Trailer **MUST** be checked out at the time of departure by facility staff and contractor driver
 >>NO Exceptions<<

Trailer Number: 7618 Date Out: 10-01-20 Time Out: 8:30A

Tarp Rolled Back (YES / NO) Air Couplings & Electrical Plug OK / Damaged

Landing Gear Working (YES / NO) Landing Gear Condition (OK / Damaged)

Tires Checked (YES / NO) Brakes Checked (YES / NO)

Tailgate & Tailgate Safety Locks Checked (YES / NO)

Biosolids Spill Response Plan in Truck (YES / NO) Driver's Initials: HC

The undercarriage, tires, wheels mud flaps and trailer exterior **MUST** be free of any
 biosolids before leaving facility.

Operator Signature: [Signature]

Driver Signature: [Signature]

Comments and/or Problems: _____



Recommendation No 1:

Water Reclamation Management should:

- A) Train and inform employees of the importance of completing trailer inspection forms at the time each trailer enters and leaves the facility;
 - B) Ensure inspection forms are completed and retained;
 - C) Ensure receipts, including the quantity of biosolids received, are obtained from land-application sites;
 - D) Review supporting records to ensure accurate information is reported to FDEP regarding biosolids transported, landfilled, or land applied; and,
 - E) Work with third party hauling firms to ensure hauling records include all FDEP required elements.
-

Management's Response:

Concur. See [Appendix A](#) for full response.



ACTION PLAN

NO.	RECOMMENDATIONS	MANAGEMENT'S RESPONSE		
		CONCUR	PARTIALLY CONCUR	DO NOT CONCUR
1.	Water Reclamation Management should:			
A)	Train and inform employees of the importance of completing trailer inspection forms at the time each trailer enters and leaves the facility;	✓		
B)	Ensure inspection forms are completed and retained;	✓		
C)	Ensure receipts, including the quantity of biosolids received, are obtained from land-application sites;	✓		
D)	Review supporting records to ensure accurate information is reported to FDEP regarding biosolids transported, landfilled, or land applied; and,	✓		
E)	Work with third party hauling firms to ensure hauling records include all FDEP required elements.	✓		



UTILITIES DEPARTMENT

9150 Curry Ford Road
Orlando, Florida 32825
Telephone: 407-254-9803
Fax: 407-254-9899
Website: www.OrangeCountyFL.net
Email: Utilities.Information@ocfl.net

September 25, 2023

To: Phil Diamond, Orange County Comptroller

From: Ed Torres, M.S., P.E., LEED AP, Director Ed Torres, M.S., P.E., LEED AP Digitally signed by Ed Torres, M.S., P.E., LEED AP, Date: 2023.09.25 14:43:57 -04'00'

Subject: Response to Audit of Orange County Utilities Handling, Management, Disposal and Land Application of Biosolids

In connection with the recent audit of the Orange County Utilities Handling, Management and Disposal of Biosolids covering the period of January 2020 through October 2020 conducted by your office, below you will find Orange County Utilities’ response to the recommendations in the report. We appreciate the independent and third-party review of the biosolids program, as well as the recommendations for improvements. We are pleased to report we have implemented all the recommendations and look forward to our continued collaboration with your professional staff.

Recommendation No 1:

Water Reclamation Management should:

- A) Train and inform employees of the importance of completing trailer inspection forms at the time each trailer enters and leaves the facility;
- B) Ensure inspection forms are completed and retained;
- C) Ensure receipts, including the quantity of biosolids received, are obtained from land-application sites;
- D) Review supporting records to ensure accurate information is reported to FDEP regarding biosolids transported, landfilled, or land applied; and,
- E) Work with third party hauling firms to ensure hauling records include all FDEP required elements.

Utilities Response to Recommendation

Management concurs.

Management and audit staff concur that biosolids are permitted through the Florida Department of Environmental Protection (FDEP). The biosolids program currently has no permit violations. All four (4) of Orange County’s Water Reclamation Facilities have and will continue to comply with their NPDES and/or state domestic waste FDEP permits.

The audit highlighted some administrative shortfalls, which have been fully remedied since the audit. This corrective action includes revising the monthly Discharge Monitoring Reports (DMR) submitted to FDEP to accurately reflect the total quantities



and supporting details of biosolids landfilled, transferred to another facility, and/or land applied for the reporting period outlined in the audit.

All newly hired employees are trained in biosolids processing operations. Refresher training is also being conducted annually with existing Water Reclamation Division staff who are responsible for performing trailer inspections. A business process with staff and supervision has been established to ensure inspection forms are completed accurately at the time of each inspection. To ensure receipts are obtained from land application sites, the land application site permittee is required to provide the South Water Reclamation Facility (SWRF) with a monthly invoice (within 30 days of application) detailing each load received. This report includes the manifest number, quantity, class, and date of application. OCU Water Reclamation staff have previously and will continue to work with third party contract haulers to ensure their records include all FDEP required elements.

Conclusions:

In closing, Orange County Utilities would like to reiterate our current and historic positive working relationship with your staff and commend their efforts on this audit, and subsequent report. We consider these independent reviews as an opportunity to strengthen our operations, our service levels to our customers and visitors, and to continuously improve as a premier utility.