

Camden County Municipal Utilities Authority

2018 Environmental Management System Performance Report

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The National Biosolids Partnership (NBP) is an alliance of the National Association of Clean Water Agencies (NACWA) and WEF, with advisory support from the U.S. Environmental Protection Agency (EPA).

Results of Audit: CCMUA meets NBP Expectations and Requirements

DEKRA Certification, Inc. conducted an independent third party audit of the environmental management system used by the Camden County Municipal Utility Authority (CCMUA) in managing its biosolids program.

The results of the audit determined that: Use of a management system approach is generating positive outcomes for CCMUA's biosolids program in the areas of regulatory compliance, environmental performance, quality practices and relations with interested parties.

CCMUA biosolids practices are consistent with NBP expectations and meet requirements of the NBP BMP Elements, with minor exceptions.

All non-conformances from prior DEKRA audits have been effectively corrected.

This audit conducted on June 25-26, 2018 has verified that the CCMUA biosolids management program meets NBP expectations and requirements and we recommend Recertification within NBP Biosolids Management Program.



During this audit, DEKRA noted the following strengths in the CCMUA biosolids management system. Leadership by CCMUA in the Camden Collaborative Initiative is an excellent example of proactive outreach and public participation.

CCMUA has prepared corrective action plans for the six nonconformance identified and those plans have been approved by the Lead Auditor.

The audit was consistent with NBP requirements for Reverification Audits and the Scope of Work agreed

by CCMUA and DEKRA. It was conducted as an integrated audit covering requirements of ISO-14001:2015 and the NBP BMP Elements, with special attention to and management activities that directly support biosolids-related operations, processes and activities.

Progress Towards Goals and Objectives

Camden County MUA had established objectives for 2018. These objectives and the progress made toward these have been reviewed by the EMS management Team. The objectives were:

- Maintain Effluent TSS <5 PPM
- Maintain Effluent CBOD <5 PPM
- “0” Air Permit violations per year
- Conduct an inspection of biosolids hauling destination (i.e. landfill, land application site)
- Reduce energy use from distribution grid by 10% by using solar power and proceeded with the construction of the sludge digester.

- Update SOPs to reflect EMS requirements.
- Completed construction of nine new green infrastructure projects during 2018.
- Maintained EMS certification
- Started CSO Long Term Control Plan



2019 Objectives

Each year CCMUA establishes objectives to help achieve its main goals and continually improve its Environmental Management System:

- Optimize Water Quality
- Maximize Volumetric Capture on wet days
- Minimize adverse impact from odor.
- Conduct at least one inspection of biosolids hauling destination
- Update SOPs
- Use of green energy
- Complete the construction of five new green infrastructure projects.
- Processing Ratio of Sludge.

- Progress on CSO Long Term Control Plan.
- Community Service



“ Be a good neighbor to the surrounding community with a view to not only doing no harm, with respect to odor impacts, but also to undertake initiatives to improve the quality of life for our neighbors.”

Anaerobic Digestion Combined Heat and Power

The CCMUA selected Anaergia for the project and in December 2015 Anaergia and the CCMUA signed an agreement in which Anaergia would design and provide process components for anaerobic digestion and design, build and operate a CHP system that would utilize the biogas produced via digestion as fuel.

The CHP system is set to begin operation in May of 2019 utilizing natural gas. In June of 2020, the digesters will be fully functional and producing biogas which will be treated and piped to the CHP unit. As a result, the CHP will be able to produce about 50% of the wastewater treatment plant's electricity needs on biogas alone and about 85% to 90% when the biogas is supplemented by natural gas.

There are multiple positive impacts to the environment, the local neighborhood and the CCMUA including: electric self sufficiency on dry weather days, an ability to operate the critical components of the plant during times of disaster via island mode and a black start engine, a reduction in the CCMUA carbon footprint, a reduction in utility costs, a 50% reduction in the quantity of sludge which will reduce odor potential to the nearby neighborhood, reduced sludge disposal costs and adding to the life of the CCMUA sludge drying system as fewer dryers will need to be in service. Importantly, these benefits are cost neutral as the CCMUA received a grant and favorable financing from the state revolving fund. So, the debt service associated with the project is offset by the corresponding reduction in operating costs as described above.

Green Energy

The Camden County Municipal Utilities Authority's (CCMUA) Delaware #1 Water Pollution Control Facility (wastewater treatment plant) is a significant user of electricity with a demand exceeding 4 megawatts. In 2010 the CCMUA committed to being 100% off the electric grid by 2020. This commitment was made to allow the CCMUA to sustain optimal operations during times of electric grid failure, reduce the CCMUA's dependence on fossil fuels and lower the CCMUA's carbon footprint. The

first component of the plan was the installation of solar panels via a power purchase agreement in which a private company designed, built and currently operates and maintains solar panels on CCMUA property. The solar panels supply approximately 10% of the electricity needs of the wastewater treatment plant. Shortly after the solar panels went into operation, the CCMUA solicited responses for anaerobic digesters and a combined heat and power (CHP) system.



Looking Forward

While the CCMUA will be electrically self-sufficient a majority of the time after the completion of the digester and CHP project, there will still be times which requires the CCMUA to draw electricity from the electric grid. However, the CCMUA has been given permission from the New Jersey Board of Public Utilities to construct a microgrid between the wastewater treatment plant and the nearby trash to steam

incinerator which produces more electricity than it can use. Not only will this project allow the CCMUA to be completely off the electric grid but it will also allow for the delivery of power from the incinerator which can then be "wheeled" through the CCMUA to the critical health and safety centers of Camden City.

CCMUA and Green Infrastructure Projects

During 2018 the Authority met its goals for Environmental Justice and Green Infrastructure through the Camden Smart Initiative.

Camden SMART is a collaboration between the City of Camden, Camden County Municipal Utilities Authority, Cooper's Ferry Partnership, Rutgers Cooperative Extension Water Re-



sources Program, New Jersey Tree Foundation, NJ Department of Environmental Protection. The purpose of Camden SMART is to develop and implement a comprehensive network of green infrastructure programs and storm water management in the City of Camden.

As a founding member of Camden SMART, the Authority has received funding from the New Jersey Infrastructure Bank to build a series of new green infrastructure projects. These projects in total manage 63 million gallons of stormwater from flooding neighborhoods each year. Below is a list of new projects completed

A new group of 5 projects were begun during the year. The completion of these projects will bring the total number of projects completed to 68.

9th And Woodland Avenue City Lot At this site, approximately 750 square feet of deteriorating sidewalk will be removed and replaced with pervious concrete that will promote groundwater recharge. A 680 square foot infiltration trench will be installed to intercept, treat, and filter stormwater runoff from a portion of S 9th Street. A portion of the vacant lot will be planted with various trees.

Beckett Street Garden At this site, deteriorating sidewalk will be removed and replaced with permeable surfaces that will promote groundwater recharge. Approximately 506 square feet of pervious concrete sidewalk will be installed to capture and infiltrate stormwater runoff. The remaining area will be de-paved and planted with various grasses.

Dudley Elementary School At this site, an approximately 900 square foot rain garden will be installed to intercept, treat, and filter stormwater runoff from a portion of the parking lot. The rain garden will have three sections, separated by check dams that will slow the flow of water through the system and further promote groundwater recharge.

Princess Avenue Vacant Lot At this site, approximately 3,000 square feet of deteriorating sidewalk will be removed and replaced with pervious concrete to promote groundwater recharge. Two infiltration trenches totaling 1,020 square feet will be installed to intercept, treat, and filter stormwater runoff from portions of Princess Avenue and Walnut Street. A portion of the vacant lot will be planted with various trees.

Early Childhood Development Center At this site, six downspout from the development centers' rooftop will be disconnected from the sewer system and routed into six downspout planter boxes in series. The downspout planter boxes will intercept, treat, and filter stormwater runoff from the rooftop. Some existing vegetation will have to be removed and relocated to incorporate the planter boxes.

Sludge Drying

During 2018, the Sludge Drying Facility was safely operated by Synagro under contract.

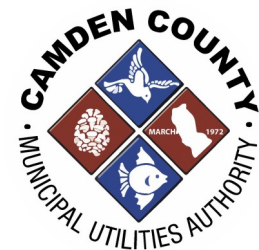
The CCMUA treatment plant produced a total of 76,294 wet tons of dewatered sludge. Of this, 59,006 wet tons or 77.3% went to the sludge dryers with the remaining 17,288 tons or 22.7% hauled off site.

At full capacity the three dryers can process an average of 160 tons of sludge per day. During many months, all three

dryers were operational. At least two dryers are needed to be able to process most of the sludge produced by the facility.

These dryers reduce odors as a result of the reduction in truck traffic. This reduction in odors helps to improve the quality of life for the surrounding neighborhood.

New disposal options for the dried Class A biosolids are currently being explored. These new options will have a lower cost for each ton received.



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MISSION STATEMENT

The Camden County Municipal Utilities Authority is committed to protecting water quality, odor minimization, cost efficiency, minimizing carbon footprint, and community service.