



ISO 14001 Internal Audit Report

Camden County Municipal Utilities Authority
Camden, New Jersey

Wastewater Treatment and Solids Generation

Audit Report Date: August 19, 2016

Audit Conducted by:

Douglas Burns, Chief Accountant
Scott Schreiber, Budget Officer
Janet Miles, D & B / Guarino Engineers

Audit Date: June 24, 2016

SUMMARY

The CCMUA conducted an internal audit of the Wet Side Wastewater Treatment and Solids Generation on June, 24 2016. The focus of the audit was the Authority's Standard Operating Procedures (SOPs). The purpose was to determine if the Authority has appropriate documentation in the SOP format for this section of the Authority's Wastewater Treatment System.

SUMMARY OF AUDIT FINDINGS

The Authority SOP Manual should be current and reflect the actual procedures as conducted by the Authority. The Wet Side Wastewater Treatment SOPs should be revised to include current procedures and equipment used. The format of the SOPs should also be updated and separate from equipment operating instructions. A Corrective Action Plan (CAP) will be prepared to have the SOPs updated by 12/1/2016.

These SOPs have been circulated in hard copy printed form, only among management. A Corrective Action Plan (CAP) will be prepared to have the SOPs distributed to the system operators and available on the Authority's computer network by 12/1/2016.

AUDIT DETAILS

The Executive Director, Andrew Kricun, selected three individuals as Internal Auditors that are not directly involved in the day-to-day operation of the plant - two CCMUA staff members and a consultant. Janet Miles has worked with our Authority in the past and has helped to prepared many of the Authority's current SOPs. The Authority staff members are qualified to conduct the audit since they are managers who are familiar with the facility and were approved by the Executive Director.

The internal audit consisted of both interviews and the review of records. CCMUA Operational Managers were interviewed for this audit. The following is the list of the individuals interviewed:

Jack Connolly, Director of Operations and Maintenance
Len Gipson, Assistant Director of Operations and Maintenance

The SOP's reviewed included:

- Barscreen and Associated Equipment
- Raw Sewage Pumping
- Primary Channel Aeration
- PTF Channel Aeration System
- Grit Collection and Grit Handling
- Scum Collection and Scum Concentration System Operation
- Primary Sludge Pumping
- Primary Sedimentation Tanks
- Primary Tank Optimization and Calculations
- Procedure for Taking a Primary Tank Out of Service

- Aeration Tank Operation
- Return Rates
- Oxygen Generation Process
- Final Sedimentation Tank Operation
- Procedure for Taking a Secondary Tank Out of Service
- Chlorine Contact Tanks – Effluent Disinfection
- ORP System – Secondary System
- Failure of Chlorination System, Plant Effluent

Authority SOPs

The CCMUA Standard Operating Policies and Procedures were reviewed. The section “Wastewater Treatment and Solids Generation” has been examined and each of the eighteen SOPs listed above were discussed during the audit. The majority of the SOPs were dated June, 2010. Several of the existing SOPs dated before June, 2010 are operating instructions only.

It was determined that several of the existing SOPs could be logically combined into a new SOP. Many had a section of the SOP which contained equipment operating instructions. These instructions can be referred to in the SOP, but should be a separate document, not the SOP Manual.

The SOPs have been circulated in hard copy printed form, only among management. The SOPs are not currently available to the system operators. These documents should be available in hard copy and on the Authority’s computer network for use by the system operators.

Updated SOPs:

The SOPs listed will be updated and consolidated as described below. The original list of 18 from the EMS audit will be rewritten to the 9 SOPs:

Preliminary Treatment Facility (PTF) SOPs: There will now be 3 SOPs instead of 4.

Bar Screen and Associated Equipment

Raw Sewage Pumping

Grit Collection and Grit Handling (added - PTF Channel Aeration System)

Primary Sedimentation Tank (PST) SOPs will be consolidated into 1 SOP.

Primary Sedimentation Tanks,
 Primary Channel Aeration,
 Primary Sludge Pumping &
 Primary Tank Optimization and Calculations

Aeration Tank (AT) related SOPs will now be as follows:

Aeration Tank Operation (added - Return Rates)

Oxygen Generation (O₂) related SOPs will be updated:

Oxygen Generation Process

Final Sedimentation Tank (FST) SOPs will now be grouped as follows:

Final Sedimentation Tank Operation (added - Procedure for removing a Secondary Tank from Service)

Effluent Disinfection / Chlorination SOPs will now be grouped as follows:

Chlorine Contact Tanks - Effluent Disinfection (added - ORP System - Secondary System and Failure of Chlorination System, Plant Effluent)

Scum Collection and Scum Concentration System Operation SOP will be updated.