



Client: Veolia Water

Project: 2 MGD Municipal WWTP in Vermont

Services Requested:

- Identify Cause of Biosolids Process Failure
- Fix Operation
- Pass Performance Test

Type of Treatment:

1. Wastewater Process: SBR Activated Sludge
2. Waste Biosolids Process:
 - a. Physical – Waste Sludge Thickening through Centrifuge
 - b. Biological – Aerobic Thermophilic Sludge Stabilization/Destruction (ATAD)

As a requirement for acceptance of the Sludge Stabilization system installed at this Municipal Wastewater Treatment Facility in New England, a process performance test was stipulated. The test required that the process demonstrate satisfactory production of Class 'A' Biosolids consistent with CFR 503 definitions. These specify three parameters:

1. Time-Temperature Duration of Treatment: Completion of required sludge processing duration (Time) at adequate Temperature to achieve pathogen destruction per the Federal EPA mathematical relationship formula.
2. Direct measurements to insure the treated sludge is within acceptable pH range prior to land application.
3. Proof of pathogen reduction results as demonstrated by fecal coliform bacterial counts of less than 1000 MPN/gram of treated dried sludge (TS) as measured by a state-certified independent laboratory.



However, the process was unable to meet those requirements following a prolonged startup. The Process Supplier retained the services of *Wastewater Experts, Inc.* to determine the cause of system failure, implement corrective procedures and fixes, and complete the specified Performance Acceptance Test.

Initial inspection revealed that the ATAD system (Autothermal Thermophilic Aerobic Biosolids Digestion) was not being operated at acceptable conditions:

- ✓ Sludge feed density was too low



- ✓ Hydraulic Retention Time was too short
- ✓ Aeration Supply was excessive
- ✓ SCADA System (Supervisory Control and Data Acquisition System) loops were flawed
- ✓ Heat Exchanger Bypass valve was allowing blow-by
- ✓ Warm-Air Recycle Valve was Jammed and non-functional
- ✓ Fecal Coliform test procedure at state-certified independent laboratory was flawed

Wastewater Experts, Inc. directed the combined efforts of the Contractor, ATAD Process Supplier, and the Owner to repair/replace/modify as necessary and place the system back into Operation. It was still not possible to operate in the intended mode at design loading because the WWTP received little raw influent outside of the winter tourist season. Both the Owner (the City), the Supplier, and the Contractor needed the system to be approved. ***Wastewater Experts, Inc.*** negotiated with the Consulting Engineer and the State DNR officials to specify an alternative testing protocol that was acceptable and fair to all parties.

Results

As requested by ***Wastewater Experts, Inc.***, the actual Performance Test was carried out over several weeks, rather than the originally-specified 3-day period. This much more rigorous test proved that the system could be operated to exceed the Class-A Biosolids requirements even at under-loaded conditions – difficult for an ATAD. It easily passed the performance test – releasing the Contractor and the Process Manufacturer for full and final payments.



When winter came and loads tripled, the appropriate operational modifications were directed by ***Wastewater Experts, Inc.*** and the system achieved even better performance results. The various process operation modifications instituted by ***Wastewater Experts, Inc.*** demonstrated a useful degree of flexibility in the process as installed.