

**State of the Art (SOTA)  
Manual for VOC Emissions  
from  
Municipal Wastewater/Sludge  
Handling & Treatment Systems**

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State of New Jersey  
Department of Environmental Protection  
Air Quality Permitting Program

**State of the Art (SOTA)  
Manual for VOC Emissions from  
Municipal Wastewater/Sludge  
Handling & Treatment Systems  
Section 3.9**

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### **3.9 SOTA MANUAL FOR VOC EMISSIONS FROM MUNICIPAL WASTEWATER/SLUDGE HANDLING & TREATMENT SYSTEMS**

#### **3.9.1 Scope**

These State of the Art (SOTA) performance levels apply to municipal wastewater/sludge handling and/or treatment equipment. For the purpose of this manual, wastewater/sludge handling and/or treatment equipment shall include, but shall not be limited to, screening and grit removal equipment, primary and secondary clarifiers, dewatering/thickening equipment, biological treatment equipment and advanced treatment equipment.

If a source operation was omitted in this manual, the applicant shall represent SOTA technology using a case-by-case approach, if applicable, pursuant to N.J.A.C. 7:27-8.7 and N.J.A.C. 7:27-22.35.

For air contaminants that may be emitted from the sources described in this manual, but for which a performance level is not specified, SOTA will be done on a case-by-case basis pursuant to N.J.A.C. 7:27-8 and N.J.A.C. 7:27-22.

This manual DOES NOT APPLY to sewage sludge incinerators, reciprocating engines burning digester gas or flares.

For odor control guidance see the *Odor Control Guidance Document*. This document is available through the Department (NJDEP).

#### **3.9.2 SOTA Performance Levels**

The Volatile Organic Compounds (VOC) removal efficiencies are:

- a) 95% by weight or an outlet VOC concentration of less than or equal to 10 parts per million volume (ppmv) one hour average for all control devices EXCEPT for thermal or catalytic oxidation; and
- b) 98% by weight or an outlet VOC concentration of less than or equal to 20 ppmv dry at 3% oxygen for thermal (conventional or flameless) or catalytic oxidation. (For oxygen concentration in the stack greater than 12%, the outlet VOC concentration is to be less than or equal to 10 ppmv dry one hour average, uncorrected for oxygen).

#### **3.9.3 Technical Basis and References**

The basis for developing this guidance is the information contained in permits approved by NJDEP, as well as input from members of the Association of Metropolitan Sewerage Agencies (AMSA) and other interested parties.

The following are some of the technologies used in VOC control. Other technologies may also be used.

- a) Chemical scrubbing
- b) Carbon adsorption
- c) Biofiltration
- d) Thermal oxidation (conventional or flameless)
- e) Addition of chemical and/or biochemical agents to the wastewater

#### **3.9.4. Recommended Review Schedule**

The Department (NJDEP) anticipates opening this manual for review every five years or whenever a new applicable rule or regulation is promulgated, whichever comes first.