

# Need To Know for Wastewater Operator License Exams

## Class III Curriculum

### *Operation of Wastewater Treatment Plants, Volume II:*

Chap 11 – Activated Sludge, Lesson 6, 11.84, and 8 (Fourth Edition) or Lessons 5, 11.8 and 7 (Fifth Edition)

Chap 12 – Sludge Digestion and Solids Handling, Lessons 1 & 3

Chap 16 – Laboratory Procedures and Chemistry, Lessons 5 -9

Chap 20 – Treatment Plant Administration (Fifth Edition)

Appendix – Math

### *Advanced Waste Treatment:*

Chap 1 – Odor Control Chap 3 -Solids Management, Lesson 1 -5

Chap 5 – Phosphorus Removal

Chap 6 – Nitrogen Removal

Chap 7 – Enhanced Biological (Nutrient) Control

### *APC&EC Regulation 3 (PDF File)*

**The following items are subjects and skills a person should know and understand before taking the Class III examination – Need to know all Class I and Class II NTK plus the following:**

1. Regulations
  - a. Federal regulations for:
    - i. Pretreatment
    - ii. OSHA
    - iii. NPDES permits
    - iv. Industrial
    - v. Prohibited Discharge
    - vi. EPA
  - b. State (APC&EC Regulation 3 (PDF File))
  - c. Local regulations
  - d. Standard Practices for Examination of Water and Wastewater
2. Biology
  - a. Types of Bacteria in the Activated Sludge and Digester processes
  - b. Types of microorganisms in the Secondary Treatment processes
3. Chemistry
  - a. Gases and compounds found in waste treatment
4. Laboratory
  - a. Sampling methods
  - b. Water Quality examinations
  - c. Laboratory safety
5. Activated Sludge
  - a. Process operation
  - b. Identification
  - c. Observation
6. Mathematics
  - a. MCRT
  - b. Detention Time
  - c. Volume
  - d. Organic loading
  - e. Hydraulic loading
  - f. SVI
  - g. F/M ratio
  - h. Sludge Age
  - i. Unit Conversion
  - j. Pumping rate
  - k. Open channel flow calculations
  - l. Chemical dosage calculations

7. Treatment Plant Operation
  - a. Odor control
  - b. Solids Management
  - c. Phosphorus removal
  - d. Nitrogen removal
  - e. Nutrient control
  - f. Plant and operational safety
  - g. Plant maintenance
  - h. Chemical
  - i. Metering and operational data
  - j. Data acquisition
8. Terms
  - a. Operational
  - b. Treatment
  - c. Abbreviations
  - d. Laboratory