

Need To Know for Wastewater Operator License Exams

Class II Curriculum

Operation of Wastewater Treatment Plants, Volume I:

Chap 5 – Sedimentation and Flotation, Lesson 2

Chap 8 – Activated Sludge B, Lessons 2 & 3

Chap 9 – Waste Treatment Ponds, Lesson 3

Chap 10 – Disinfection and Chlorination, Lessons 2, 4 & 5

Appendix – Math Operation

Wastewater Treatment Plants, Volume II (Fourth Edition)

Chap 11 – Activated Sludge, Lessons 1 & 2

Chap 16 – Laboratory Procedures and Chemistry, Lessons 2 - 4

APC&EC Regulation 3 (PDF File)

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

1. Regulations
 - a. What federal agency has the duty of developing and enforcing regulations to protect nations' waters?
 - b. What is the name of the permitting system called that regulates the discharge of pollutants?
 - c. Where are the environmental regulations located?
 - d. Major goals of the Federal Water Pollution Control Act of 1972
 - e. Storm water from pipelines are regulated by?
 - f. The Resource Conservation and Recovery Act main statute concerning
 - g. Penalties for a noncompliance are covered in what federal regulations?
 - h. Where is toxic waste disposed?
 - i. Material Safety Data Sheet
 - j. Conventional pollutants
 - k. National Pollutant Discharge Elimination System (NPDES)
 - l. AR Regulation 3
2. Biology/Chemistry/Laboratory
 - a. Test used to estimate the organic loading
 - b. Hypochlorinator
 - c. Chlorine leak detection
 - d. pH
 - i. Range of pH?
 - ii. Net change per-unit of pH
 - e. Disease-producing bacteria
 - f. Oxygen demand
 - g. Types of dechlorinating agents
 - h. Largest single cause of accidents in labs
 - i. Specific Gravity
 - j. Chlorine gas
 - k. An Imhoff cone
 - l. Blanks
 - m. Percolation
 - n. Laboratory: glassware, errors, sampling, holding times
 - o. Hydrogen sulfide gas
 - p. Solids: suspended and total
3. Math
 - a. Units of flow measurements
 - b. Detention time
 - c. Pumping rates
 - d. Volume
 - i. Gallons
 - ii. Cubic Feet

- e. Temperature calculations
 - f. Water Horse Power
 - g. Dosage
 - i. 100% concentration
 - ii. Less than 100% concentration
 - h. Type and sizes of Chlorine cylinders
 - i. Demand
 - j. Velocity
 - k. Hydraulic loading of trickling filters
 - l. BOD calculations
 - m. A weir overflow rate
4. Operation & maintenance
- a. Screen shutdown procedures
 - b. Lock out and tag out
 - c. Manhole safety
 - d. Chlorine leakage
 - i. Equipment
 - ii. Method
 - iii. Ventilation
 - e. Other plant safety
5. Clarifiers
- a. Average detention time
 - b. Location of a primary unit
 - c. Location of a secondary unit
 - d. Sludge wasting
 - e. Settling
6. Trickling Filters
- a. Filter slime
 - b. Major parts of Trickling filters
 - c. Types of media used
 - d. Units of loading for trickling filters
 - e. Operation problems of trickling filters
7. Metering
- a. Types of flow metering devices and characteristics
 - b. Chlorine metering devices
 - c. Chart recording
8. Activated sludge
- a. Observations and problems
 - b. Types of aeration
 - c. Sludge age
 - d. The term "Activated"
 - e. Diffusers
 - f. Modes of operation
9. Oxidation ditches
- a. Dissolved oxygen concentration
 - b. Parts
 - c. Controlling MLSS
 - d. Modification of what type of process
10. Ponds
- a. Types
 - b. Effect of wind action
 - c. Most common type of pond
 - d. Toxic waste
 - e. Top of a levee
 - f. Algae bloom
11. Miscellaneous
- a. Short Circuiting
 - b. Shock load
 - c. Operating practices
 - d. Infiltration