



<b>Workshop #</b>	WW105
<b>Workshop Name</b>	Secondary Treatment-A Review of the Activated Sludge Process
<b>Summary</b>	In this workshop, you will learn about bacteria and how temperature affects them. It also discusses the different types of bacteria, and how/why we use them to treat wastewater. Preliminary Treatment, Primary Treatment, and the basics of Secondary Treatment are covered, concentrating on Activated Sludge in particular. The student will learn about RAS and WAS, and how to calculate WAS rates. There is also an introduction to BOD and Biological Nutrient Removal (BNR). A brief overview of pumps is next, giving particular emphasis to centrifugal pumps and how they work. Also, Confined Space and Hydrogen Sulfide Safety is discussed. Some other similar WWWATER workshops: Basic Activated Sludge, Advanced Activated Sludge, Wastewater Certification Exam Prep., Wastewater Collection Systems Certification Exam Prep., Secondary Treatment-A Review of the Activated Sludge Process.
<b>KDHE/ABC Credits/Points</b>	10 hours/0.25 points
<b>Target Audience</b>	Those just starting out in the wastewater field, or operators who work in activated sludge facilities. This is also a great overall review for any operator.

### Workshop Description

This workshop is a great basic, all-around review of the entire treatment process, from start to finish.

We will talk about such topics as Preliminary Treatment; Primary Treatment; and the different types of bacteria and how they work, what affects them, and how to keep them "hungry, healthy, and happy."



After covering the treatment processes, we focus on Activated Sludge. We study such topics as process control and how to determine what kinds of bacteria you have in your plant, and what that means. There is an introduction to BNR (Biological Nutrient Removal), and what is important to know about it. Also, BOD is covered, and why it is necessary for an operator to know what BOD is, and how it affects treatment.

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Then we tie it all together by talking about the differences between return rates and wasting rates. The operator learns how to calculate wasting rates, and how to use the information for process control. The workshop also contains a brief overview of pumps, with an emphasis on centrifugal pumps. You will learn how centrifugal pumps work, and the differences between centrifugal pumps and positive displacement pumps.

The workshop concludes with Confined Space Safety and Hydrogen Sulfide Safety.

Be sure to bring a pencil/pen, highlighters and a calculator (we will also be doing wastewater math).

### Some Testimonials from Students:

- The workshop was a good refresher and Dale was always making the material interesting and interactive.
- Instructor is well versed in subject matter and has personal experiences which lends to presentations.
- The discussion on Activated Sludge was good. Helped get a better understanding of how the "bugs" work.

### How to register

1. Follow the link below to go to the Workshop page on the website, or use any app that can read QR codes and scan the QR code below.
  - Be sure to read all information—especially the information in **red**—before proceeding.
2. Click on the link of the appropriate Workshop Title. This takes you to the "At A Glance" page for your chosen workshop.
3. Next, double-check the information (like the workshop title, date and location of the workshop) to be sure you have chosen the correct one.
4. Then click on the appropriate link to register and pay

### Links:

<http://wwwater.org/workshops.html>



WWWATER Workshops