Training Evaluation Request
Oregon Environmental Services Advisory Council
Watura
Laboratory Equipment and Procedures

Course title: Laboratory Equipment and Procedures

Drinking Water CEUs: 1.5 h

Wastewater CEUs: 1.5 h

Instructor bio: **Virgil WELCH** has over thirty years of technical and laboratory experience, with over 7 years in the water industry. He began his career as a laboratory technician for the Florida Department of Business and Professional Regulation and later worked as a senior lab analyst for private industry. Prior to joining The Water Tower, he honed his skills as both an industrial and residential wastewater operator, which led to his position as Assistant Water/Wastewater Director for the City of Flowery Branch, GA. Virgil WELCH brings expert experience as a GC/MS lab manager, as a team supervisor, and as an essential employee of the water industry to the Water Tower Team. In his current role, he provides vital real-world training for water professionals and oversees applied research efforts to advance TWT's mission.

Course description: Working in a water or wastewater laboratory involves using a variety of specialized equipment — from volumetric flasks to burettes. Proper use of this equipment is essential, and clear procedures ensure consistent, reliable operation. Regular maintenance—such as calibration, setting, and thorough rinsing—helps maintain accuracy and prevent costly errors. This course will guide you through proper sampling, storage, lab procedures, and troubleshooting to build confidence and precision in your work.

Learning goals:

- Identify key laboratory equipment, sampling tools, and safety protocols used in water analysis
- Describe correct sampling, storage, and handling procedures for drinking water and wastewater

Tracking attendance method:

The e-learning platform offers a highly interactive experience designed to engage learners at every stage. It begins with an initial test to assess knowledge and tailor the learning journey. The course includes short, focused videos interspersed with mandatory training quizzes that reinforce key concepts and ensure active participation. Students are required to watch every video entirely and to answer practice questions before advancing to the next course module. Students cannot skip course content. A final quiz at the end of each chapter evaluates overall comprehension and certifies the learner's mastery of the material. Students must obtain a minimum score of 70% for every chapter's final quiz to successfully complete the course and obtain the certificate of attendance. The platform automatically tracks each learner's learning time. The real learning time is indicated alongside the delivered credits in the course completion certificate.

Course outline: Laboratory Equipment and Procedures

Initial Test		8 min
1. Laboratory Equipment and Procedures	1.1. Course Overview	1 min
	1.2. Overview of Lab Equipment	8 min
	1.3. Activity - Lab Equipment	1 min
	1.4. Safety Protocols in the Lab	4 min
	1.5. Activity - Safety Hazards	1 min
	1.6. Sampling Purposes in Wastewater and Drinking Water	5 min
	1.7. Compatible Storage	6 min
	1.8. Lab Units	5 min
	1.9. Making a Dilution	6 min
	1.10. Performing a Titration	4 min
	1.11. Interpreting Lab Results	5 min
	1.12. Common Sources of Error and How to Avoid Them	6 min
	1.13. Troubleshooting Lab Procedures	7 min
	1.14. Course Glossary	5 min
	1.15. Chapter 1 - Interactive Fact Sheets	6 min
	Chapter Test	12 min
Total Learning Time		90 min
Requested Contact Hours		1.5 h