A dental unit waterline is defined as any tubing that carries water from a main water supply to a dental instrument, such as a high-speed hand piece, water syringe, or ultrasonic scaler. Since this water is being used on a patient during a dental procedure, it is the responsibility of the provider to monitor the microbiological quality of that same water. Dental unit waterline testing provides you with the assurance that the water being used during your dental procedures is safe and meets the appropriate quality standards.

What are the Water Quality Standards?

Standards have been established by the EPA (Environmental Protection Agency), APHA (American Public Health Association), and the AWWA (American Water Works Association) to provide guidance for microbial water quality. According to the EPA, drinking water should contain ≤500 cfu/ml (colony-forming units per milliliter) of heterotrophic bacteria. Heterotrophic bacteria are incapable of manufacturing their own food; therefore, they must rely on taking in organic substances to create food and energy. Examples of heterotrophic bacteria that are of concern to human health are *Aeromonas species*, *Yersinia species*, *Klebsella* species, and *Pseudomonas* species. Water used during dental procedures should meet the same standards as drinking water. In 1995 the American Dental Association (ADA) asked equipment manufacturers to provide equipment capable of delivering water quality at ≤200 cfu/ml. Although the ADA made this request, drinking water standards set by the EPA and APHA/AWWA are accepted as the benchmark by the Center of Disease Control and Prevention (CDC).

When Should Waterlines be Cleaned or Tested?

According to the recommendations from the CDC, waterlines should be flushed for several minutes at the beginning of each clinic day to reduce the microbial load in the water system. While flushing the waterlines helps in the reduction of free-floating microbes in the water, it does not assist in the removal of potential biofilm that has formed in the waterline tubing. Additional measures should be taken in the removal of potential biofilm. It is also suggested that waterlines are flushed for 20-30 seconds after each patient.

Currently, there are no mandates that regulate the testing of dental unit
There are multiple ways to test the quality of the water in the dental unit waterline. Test methods range from the “in-office” approach, that utilizes rapid methodologies, to utilizing a third-party service/laboratory to whom you can mail your water samples. Either approach is acceptable, but the ultimate goal is to determine the cfu/ml in your dental unit waterline to see if it meets acceptable water standards.

**Remediation After Contamination**

If you discover that your dental unit waterline quality exceeds the drinking water standard, there are ways to remediate your system. Here is a list of ways to remediate:

1. If you’re using a municipal water source, consider switching over to an independent water reservoir system where more controlled forms of bottled water are used.

2. Utilize chemical treatment regiments. Be sure to consult with your equipment manufacturer to determine which chemicals are most compatible with your equipment.

3. Implement daily draining and purging techniques to prevent the stagnation of water.

4. Install point-of-use filters that capture microbial cells before they exit the water system.

The CDC recommendations for purging can be found on Page 1.

**Summary**

While there are no regulations in place that require the dental practice to test microbial quality used in the dental unit waterline, the importance of maintaining acceptable standards is evident. This is particularly true when referring to immunocompromised patients. If it is determined that your dental unit water is not meeting acceptable standards, consult with your equipment provider and implement corrective actions.

For additional information on Dental Unit Waterlines, please visit: [http://www.ada.org/en/member-center/oral-health-topics/dental-unit-waterlines](http://www.ada.org/en/member-center/oral-health-topics/dental-unit-waterlines)

**References Available Upon Request**

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**WELCOME TO THE TEAM, ROSS!**

SMS is happy to announce that Ross White has joined the team as our new Program Manager, effective September 14, 2015. Ross is a 2012 graduate from The Ohio State University where he received his Bachelor of Science degree in Biology.

Prior to joining SMS, Ross worked as a Microbiologist and Quality Assurance Manager for Nelson Packaging Company, Inc. in Lima, Ohio where he was responsible for authoring and leading the validation protocols, installation, operational, and performance qualifications for household chemical products.

SMS is looking forward to having Ross join the team. He will be responsible for overseeing the day-to-day operations of the department and will also work to enhance our product line and grow our customer base.

Ross can be reached at white.1483@osu.edu.

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**Four Things to Remember as a New Year is Upon Us**

All of us at SMS pride ourselves on being “Experienced, Reliable, Well-Organized.” Like many of our subscribers, we are taking this time to review and refresh some of our procedures to ensure that 2016 is a great year. Here are four tips, regarding your biological monitoring, that we hope you review with your staff during the weeks to come:

1. Spore strips should be removed from the instrument pouch prior to mailing the test envelope back to SMS.

2. Spore strips should not be removed from the outer glassine envelope. The spore strip will be removed aseptically in the laboratory.

3. Confirm that all information is included on the testing envelope – this includes the test date, equipment ID, and the operator name.

4. Double check that SMS has the correct contact information (practice name, contact person, address, phone number, and email address) on file for the office.