

High Bacterial Test Result Procedure

For Floatation Systems



When high levels of bacteria are found in samples of float tank water:

1. Close the affected floatation tank(s) to the public right away.
2. Notify the local and state health departments with the lab test results and Bacteriological Test Result Reporting Form (www.doh.wa.gov/Documents/Pubs/333-236.docx) within 48 hours of receiving the test results.
3. Don't drain the tank until instructed to do so, and don't use any chemicals to disinfect the water.
4. Wait for the local health department to respond. Follow the procedure that the local health department provides.

Bacterial levels are considered too high when any one of the following occurs:

- Heterotrophic plate count (HPC) exceeds 200 CFU per 1mL sample.
- Total coliform count exceeds an average of 1 coliform per 100mL sample when using membrane filter test.
- Total coliform count exceeds 2.2 bacteria per 100mL sample when using the most probable number (MPN) method.

Note: Make sure that the results are provided by a laboratory who is accredited by the Washington State Department of Ecology to run these types of tests.

Steps that can be taken to respond to high bacterial count results (Do not take these steps until directed to do so by your local health department):

1. Treat the water as usual with a proper number of turnovers.

Note: Currently in Washington, minimum requirement is 4 turnovers. A proper number of turnovers is what was agreed on during the plan review process.

2. Re-sample the water and have it tested again (HPC and/or Total coliform, whichever is affected). Follow the lab specified procedure closely trying not to contaminate the sample.

Note: This step is recommended because sometimes labs produce false positive results (the result shows that there is a high level of bacteria when in fact there is not) and sometimes the person who collects samples inadvertently contaminates the samples with bacteria.

3. If the result is good, the floatation tank can be re-opened with the local health department's permission. If the result is not good, proceed to Step 4.
4. Make sure treatment devices (UV/ozone) and other equipment are properly maintained according to the manufacturer's recommendation. If problems are identified, proceed to Step 5. If no problems are found with the devices, proceed to Step 6.

Note: Follow the manufacturer's recommendation and the procedure stated in the operation plans to make sure that the devices are in good repair. Possible maintenance issues include, but are not limited to:

- Devices are not turned on.
- UV lamp is old and no longer effective.
- UV lamp sleeve needs to be cleaned.
- Ozone tube may be broken or plugged.
- Devices are malfunctioning.

Contact the manufacturer if necessary to find out what other maintenance procedures can be followed.

5. Ask the manufacturer what can be done to correct the problem. Do what is necessary to correct it, treat the water with a proper number of turnovers, and re-test the water (HPC and/or Total coliform, whichever is affected). If the result is good, the floatation tank can be re-opened with the local health department's permission. If the result is not good, proceed to Step 6.
6. Do the following:
 - a. Prepare 4 or 8 unused sample bottles (depending on HPC and/or Total coliform, whichever is affected).
 - b. Take a sample from the tank and label it "Pod # after 0 turnovers."

- c. Recirculate the water with the devices turned on for 4 turnovers, take a sample, and label it "Pod # after 4 turnovers."
- d. Recirculate the water with the devices turned on for another 4 turnovers, take a sample, and label it "Pod # after 8 turnovers."
- e. Recirculate the water with the devices turned on for another 4 turnovers, take a sample, and label it "Pod # after 12 turnovers."
- f. Submit the samples to the lab for testing.
- g. Share the results with the health department for analysis.

Note: Taking this step will allow us to see if the treatment devices are working to kill bacteria at all. It is possible that, with the prescribed number of turnovers, it does not provide enough contact time with UV/ozone for the bacteria to be inactivated. Doubling, tripling, and quadrupling the number of turnovers will show if the devices are doing anything. Expected outcomes are:

- a. A decreasing trend with the bacterial count as the number of turnovers increases; or
- b. No change in bacterial count as the number of turnovers increases.

If the outcome is (a), two possible options for mitigation are:

- i. Establish a new (longer) recirculation time between bathers to ensure effective treatment of water; or
- ii. Replace the treatment devices with different ones that are more effective (plan review for modification of existing water recreation facility will be required).

If the outcome is (b), a possible option for mitigation is:

- i. Replace the treatment devices with different ones that are more effective (plan review for modification of existing water recreation facility will be required).

7. Follow this step only if recommended or required by the health department and the manufacturer has no concerns.

Hyperchlorinate the recirculation system with the following procedure.

- a. Drain the floatation tank completely.
- b. Scrub surfaces to remove accumulated biofilm.
- c. Fill the floatation tank with potable water and add chlorine (not bromine) and make sure it reaches 20ppm free chlorine level. A pool test kit should be used for accurate reading. Household bleach without any fragrance can be used.
- d. Recirculate it to evenly distribute chlorine throughout the system and achieve 4 turnovers.
- e. Maintain 20ppm free chlorine level and maintain pH of 7.5 or less for 13 hours. Add chlorine and recirculate as needed.
- f. Drain the chlorinated water.
- g. Rinse the floatation tank by filling with potable water, recirculating to achieve 4 turnovers, and draining completely.
- h. Refill the pod with fresh water and Epsom salt.

Note: Taking this step will eliminate a lot of the bacteria that are present within the system. However, it will not guarantee that the bacteria will not come back if no changes in the system or operation are made. A close monitoring of bacterial count by series of lab testing afterwards will be required.