

2023 Pool & Spa Conference Q&A

The questions answered are for educational purposes ONLY. Prior to any proposed changes to your current water recreation facility operation, first consult your local health department. You can find the contact details for your local health department here: [Washington State Local Health Jurisdictions](#) | [Washington State Department of Health](#)

Q: Can you clarify the issues high cyanuric acid can cause?

A: Cyanuric acid (CYA) reduces the ability of chlorine to inactivate harmful germs and pathogens. As the level of CYA increases the germ-killing power of chlorine decreases. Chapter 246-260 WAC requires facilities to check cyanuric acid weekly when used. CYA levels must be maintained below 90 ppm.

Q: Why does Washington allow cyanuric acid in indoor pools and spas?

A: When the Washington pool rules chapter WAC 246-260, was first written, the negative impact of CYA was not well studied. The science at the time was not strong enough to disallow CYA in indoor facilities.

Q: Does bromine avoid some of these issues when it comes to stabilizers?

A: Bromine is destroyed by sunlight much like chlorine, however, bromine cannot be stabilized using cyanuric acid. With that, bromine may not be an appropriate choice for outdoor pools/spas.

Q: What sanitizer would you recommend for hot tubs?

A: The primary disinfectant for your spa is always dependent upon your specific operation and any changes should be discussed with a pool professional and your local health department to ensure that modifications meet code requirements. For example, depending upon the type of disinfectant you use you may need additional chemical/equipment storage space. A construction permit may be required prior to any work being done to upgrade the spa system.

Q: Should total alkalinity be 100 for a cal hypo pool?

A: Total alkalinity recommended for your pool/spa is dependent upon your surface type (plaster, fiberglass, painted, etc.) and your saturation index to determine what would bring your water into balance. The 2023 Model Aquatic Health Code recommends a total alkalinity range of 60 to 180 ppm.

Q: How can we manage birds like geese and ducks coming into our pool?

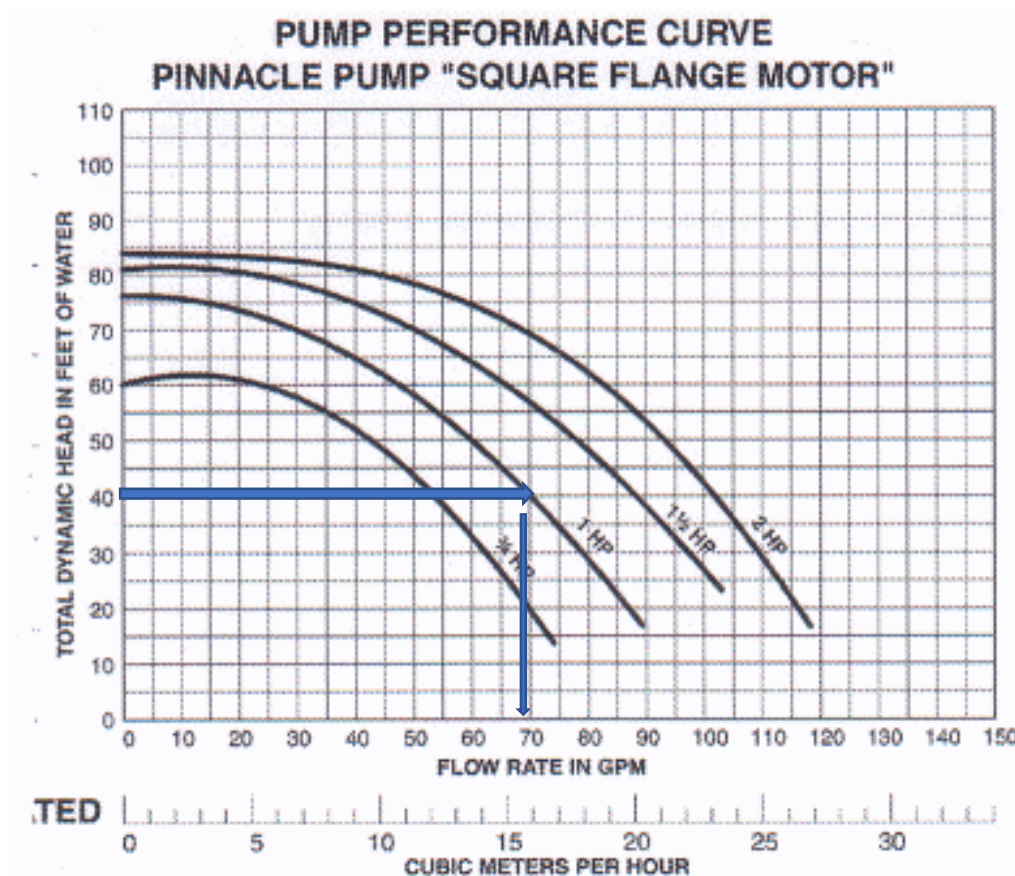
A: Birds and geese can have harmful disease-causing pathogens in their poop (e.g., *Giardia*, *E. coli* O157, etc.) so it is important to keep them out of the water and off the deck. Some ways you can prevent birds are by having a decoy predator (i.e., fake owl, wolf) nearby, spike stripping on nearby roof edges, or removing grassy areas near pool to make the area less bird friendly.

Q: can you please show us one example of calculating flow rate by calculating vacuum gauge and pressure gauge.

A: The preferred and practical way to figure out the rate of flow for a pool's recirculation system is to have a properly installed flow meter on the return line. If assistance is needed with installation, please contact an established pool contractor. If the pool's designed/approved flow rate is unknown and a

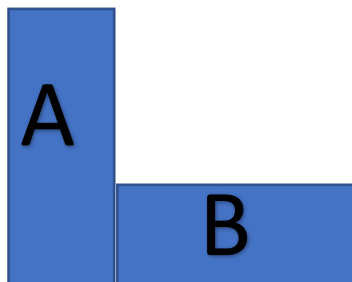
properly installed flow meter is not installed on the return line the following steps can be used to verify the existing flow rate.

1. Obtain the name of the installed recirculation pump and model number. This information is needed to obtain the manufacturer's pump curve which is specific to the installed pump.
2. Read the Gauges.
 - a. A vacuum gauge should be installed on the suction side of the pump. Verify the exact location with a professional pool contractor.
 - b. A pressure gauge should be installed on the discharge side of the pump. Verify the exact location with a professional pool contractor.
 - c. Make sure the filter is clean before taking the measurements from the vacuum gauge and pressure gauge.
 - d. Multiply the vacuum gauge reading by 1.13. Multiply the pressure gauge reading by 2.31. Add the two figures together for a system Total Dynamic Head (TDH). For example, if the vacuum reading is 8 multiply it by 1.13 to equal 9.04. If the pressure gauge reading is 9 multiply it by 2.31 to equal 41.58 TDH.
3. Once you know the pump manufacturer, the pump model number and the TDH you will use the pump's performance curve to figure out the existing flow rate. Use the image below to follow the example. We find 41.58 feet of head and draw a straight horizontal line to the 1 HP pump curve (we are assuming the pump installed is a 1 HP pump). Now, draw a line straight down to the GPM we see that the pump is flowing at approximately 70 gallons per minute. At this time, you can take this data to verify the pool systems meet the requirement in the Chapter 246-260 WAC. Contact your local health jurisdictions if you need further assistance.



Q: How to calculate for L shaped pools? (I am assuming volume)

A: If I had to calculate the pool volume of an L shaped pool, I would break the pool up into to rectangle/square sections. I would calculate the volume of Area A (Length x Width x Average depth x 7.48) then add that volume to the volume of Area B using the same formula. This would give you the total volume of the pool. **Formula: Area A (Length x Width x Average depth x 7.48) + Area B = Total Volume**



Q: Can you explain how chlorine free oxidizers affect chlorine test kit readings.

A: Sanitizer levels are required to be tested using a DPD test kit. DPD turns a pink color in the presence of strong oxidizers like chlorine and bromine. Unfortunately, chlorine free shock chemicals, Potassium Monopersulfate (KMPs), are also oxidizers. KMPs interferes with the total chlorine test. KMPs oxidizes the DPD #3 reagent giving a false high combined chlorine reading. If KMPs is used, the interference it causes can be minimized by using a reagent formulated to remove this interference.

Q: What temp should my chemical storage be?

A: Centers for Disease Control and Prevention (CDC) recommends operators store pool chemicals below 95 degrees Fahrenheit. I strongly recommend reviewing the Safety Data Sheets (SDS) for each pool chemical stored in the chemical storage room. The SDS sheet will have specific information on how to store the chemicals. The temperature is normally provided in Celsius and located in the Storage and Handling section of each SDS sheet.

Q: How to winterize a pool?

A: This question is best answered by a pool professional, A pool maintenance company should have a good knowledge of your pool and can plan for issues like the potential for the water to freeze or other site-specific considerations.

Q: Can we use an electronic monitoring device?

Electronic pool monitors are relatively new products that have limitations, but may provide helpful real-time information of the pool chemistry. There are many products on the market that are not NSF Standard 50 listed and intended for residential pools with most requiring installation of a device in a skimmer to monitor water quality.

If considering this type of device at your water recreation facility, please note:

- These devices do not replace the requirement for a code compliant field test kit for required daily water quality monitoring and recordkeeping.
- Pool operators must use their test kit to confirm the pool water quality before making any adjustments to pool water.
- Not all models provide comprehensive testing information for maintaining water balance.

Please note, automated pool chemical controllers using a system of chemical monitoring that sends signals to other equipment to maintain water quality parameters must be NSF Standard 50 listed. Any changes or the addition of an automated controller system should be discussed with a pool professional and your local health department to ensure that these meet chapter 246-260 WAC requirements.

If you have questions regarding this Q&A from the 2023 Pool & Spa Conference, you can contact: WaterRecreation@doh.wa.gov" WaterRecreation@doh.wa.gov

For questions regarding your water recreation facility and operation, you can find your local health department here:

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