PRIMARY PACKET
Calculation Formulas

CH 3 - Amount Conversions

- Ounces to Pounds — Ounces ÷ 16 = Pounds
- Fluid Ounces to Gallons — Fluid Ounces ÷ 128 = Gallons

CH 3 - Surface Areas

- Rectangle / Square — Length x Width = Square Feet (ft^2)
- Circle — 3.14 x Radius x Radius = Sq. Feet (ft^2)
  (Radius = Diameter ÷ 2)

CH3 - Pool Volume

- Rectangle — Length x Width x Average Depth x 7.5 = Gallons
  - (Average Depth = Shallow + Deep ÷ 2)
- Circle — 3.14 x Radius x Radius x Avg. Depth x 7.5 = Gallons

CH 3 Water Loss Formula

- Length x Width x .0833 x 7.5 = Gallons for 1inch

CH 6 Saturation Index

- pH +Temperature Factor +Calcium Factor +Alkalinity Factor –TDS Factor = SI

CH 7 Breakpoint Chlorination (Removal of Chloramines)

- Total Chlorine (TC) - Free Chlorine (FC) = Combined Chlorine (CC)
- Combined Chlorine x 10 = Breakpoint Chlorination (BPC) Amount
- BPC – FC = Desired Change in ppm

CH 10 Flow Rate & Turnover Rate

- Pool Volume ÷ Flow Rate ÷ 60 min/hr = Turn Over Rate in Hours
- Pool Volume ÷ Turn Over Rate ÷ 60 min/hr = Flow Rate in gpm

CH 11 Filter Sizing

- Flow Rate (FR) ÷ Filter Media Rate (FMR) = Filter Area (ft^2) (FA)
- Flow Rate ÷ Filter Area = Filter Media Rate (gpm/ ft^2)
- Filter Area x Filter Media Rate = Flow Rate (gpm)

CH 12 Heater Sizing

- Pool Volume x 8.33 x Temperature Adjustment = BTU
  (Adjusted Temp - Starting Temp = Temp Adj.)

CH 13 Spa/Therapy Water Replacement Contaminant Prevention

- Spa Volume (Gallons) ÷ 3 ÷ Average Users Per Day = Complete Water Replacement(Days)

Fecal Incident Response Recommendations for Aquatic Staff

What do you do when you find poop in the water?

Check for existing guidelines from your local or state regulatory agency before use. CDC recommendations do not replace existing state or local regulations or guidelines.

These recommendations are for responding to fecal incidents in chlorinated aquatic venues (for example, pools and water playgrounds).

Improper handling of chlorine-based disinfectants can cause injury. Follow proper occupational safety and health requirements when following these recommendations. For more pool chemical safety information, visit www.cdc.gov/healthywater/swimming/aquatics-professionals/preventing-pool-chemical-events.html.

CLOSURES: Fecal incidents are a concern and an inconvenience to both aquatic staff and patrons. Aquatic staff should carefully explain to patrons why the aquatic venue needs to be closed in response to a fecal incident. Explaining the reasons for closing the venue (for proper disinfection and protection of swimmer health) is likely to promote patron understanding and minimize their frustration. Closures allow chlorine to do its job—kill germs and help prevent recreational water illnesses (RWIs).

Hot tubs/spas, and some water playgrounds, can have much smaller amounts of water. In response to formed or diarrheal fecal incidents in small-volume venues, it might be more efficient to completely drain as much water as possible from the venue and associated plumbing; scrub and clean all accessible surfaces in contact with contaminated water; replace or clean filter media when appropriate, and refill with uncontaminated water from an approved source (for example, municipal water system).

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

What do I do about...

formed fecal matter (poop) in the water?

Formed fecal incidents pose a risk for spreading germs, including moderately chlorine tolerant *Giardia*. To disinfect the water following a formed fecal incident, aquatic staff should follow the steps below, which are based on killing or inactivating *Giardia*.

Step 1: Close the aquatic venue to swimmers. If you have multiple venues that use the same filtration system—all of the venues will have to be closed to swimmers. Do not allow anyone to enter the venue(s) until the disinfection process is completed.

Step 2: Remove as much of the fecal matter as possible (for example, using a net or bucket) and dispose of the fecal matter in a sanitary manner. Clean and disinfect the item used to remove the fecal matter (for example, after cleaning, leave the net or bucket immersed in the water during disinfection). VACUUMING FECAL MATTER FROM THE WATER IS NOT RECOMMENDED.

Step 3: Raise the water's free chlorine concentration to 2 parts per million (ppm), if less than 2 ppm. Maintain free chlorine concentration at 2 ppm and water at pH 7.5 or less for 25–30 minutes.[1] Other concentrations or closure times can be used (see table). State or local regulators may require higher free chlorine concentration in the presence of chlorine stabilizers,[2] which are known to slow the rate at which free chlorine inactivates or kills germs.

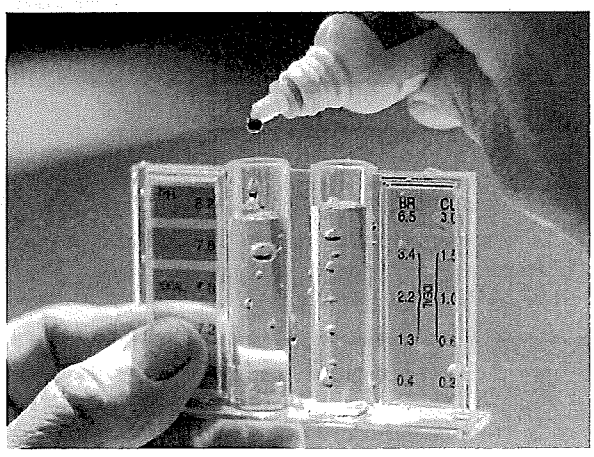
Step 4: Confirm that the filtration system is operating while the water reaches and is maintained at the proper free chlorine concentration and pH for disinfection.

Step 5: Allow swimmers back into the water only after the disinfection process has been completed and the free chlorine concentration and pH are within the operating range allowed by the state or local regulatory authority.

Establish a fecal incident log.
Document each fecal incident by recording date and time of the event, whether it involved formed fecal matter or diarrhea and the free chlorine concentration and pH at the time or observation of the event. Before reopening the aquatic venue, record the procedures followed in response to the fecal incident (including the process used to adjust chlorine concentration and pH [if necessary], the free chlorine concentration and pH, and the disinfection time). You can download a Water Contamination Response Log at **http://www.cdc.gov/healthywater/swimming/aquatics-professionals/fecalresponse.html**

***Giardia* Kill or Inactivation Time for a Formed Fecal Incident**

Free Chlorine Concentration (ppm)	Disinfection Time[3]
1.0	45 minutes
2.0	25–30 minutes
3.0	19 minutes



1. Ideally, the water temperature should be 77°F (25°C) or higher during the disinfection process.
2. Chlorine stabilizers include compounds such as cyanuric acid, dichlor, and trichlor.
3. These closure times are based on 99.9% kill or inactivation of *Giardia* cysts by chlorine at pH 7.5 or less and temperature of 77°F (25°C) or higher. The closure times were derived from the U.S. Environmental Protection Agency (EPA) Disinfection Profiling and Benchmarking Guidance Manual. These closure times do not take into account "dead spots" and other areas of poor pool water mixing.

What do I do about...

diarrhea in the water when chlorine stabilizer[1] is NOT in the water?

A diarrheal incident is a high-risk event for contamination caused by *Cryptosporidium* (or "Crypto"), an extremely chlorine-tolerant parasite. Therefore, it is important that aquatic staff educate patrons not to swim when ill with diarrhea. To disinfect the water following a diarrheal incident, aquatic staff should hyperchlorinate, or raise the free chlorine concentration to a high concentration for a long period of time. If necessary, before attempting to hyperchlorinate, consult an aquatic professional to determine the feasibility, the most optimal and practical methods, and needed safety considerations.

Step 1: Close the aquatic venue to swimmers. If you have multiple venues that use the same filtration system—all of the venues will have to be closed to swimmers. Do not allow anyone to enter the venue(s) until the hyperchlorination process is completed.

Step 2: Remove as much of the fecal matter as possible (for example, using a net or bucket) and dispose of the fecal matter in a sanitary manner. Clean and disinfect the item used to remove the fecal matter (for example, after cleaning, leave the net or bucket immersed in the water during hyperchlorination).

VACUUMING FECAL MATTER FROM THE WATER IS NOT RECOMMENDED.

Step 3: Raise the water's free chlorine concentration (see Table below) and maintain water at pH 7.5 or less.[2]

Step 4: Achieve a concentration × time (CT) inactivation value of 15,300[3] to inactivate or kill Crypto. The CT inactivation value refers to the concentration of free chlorine in parts per million (ppm) multiplied by time in minutes at a specific pH and temperature.

Step 5: Confirm that the filtration system is operating while the water reaches and is maintained at the proper free chlorine concentration and pH for hyperchlorination.

Step 6: Backwash the filter thoroughly after reaching the CT inactivation value. Be sure to discharge directly to waste and according to state or local regulations. Do not return the backwash through the filter. Where appropriate, replace the filter media.

Step 7[4]: Allow swimmers back into the water only after the required CT inactivation value has been achieved and the free chlorine concentration and pH are within the operating range allowed by the state or local regulatory authority.

Establish a fecal incident log.
Document each fecal incident by recording date and time of the event, whether it involved formed fecal matter or diarrhea and the free chlorine concentration and pH at the time or observation of the event. Before reopening the aquatic venue, record the procedures followed in response to the fecal incident (including the process used to adjust chlorine concentration and pH [if necessary], the free chlorine concentration and pH, and the hyperchlorination time). You can download a Water Contamination Response Log at **http://www.cdc.gov/healthywater/swimming/aquatics-professionals/fecalresponse.html**

Use the formula below to calculate the time required to inactivate or kill Crypto[5]

Concentration × time (CT) inactivation value	÷	Free chlorine concentration (parts per million [ppm])	Time (in minutes)
15,300	÷	20*	= 765 (or 12.75 hours)
15,300	÷	10	= 1,530 (or 25.5 hours)

1. Chlorine stabilizers include compounds such as cyanuric acid, dichlor, and trichlor.
2. Ideally, the water temperature should be 77°F (25°C) or higher during the hyperchlorination process.
3. Alternative options could include circulating the water through a secondary disinfection system (for example, ultraviolet light or ozone) to theoretically reduce the number of Crypto oocysts in the aquatic venue(s) below one oocyst/100 mL as outlined in the Model Aquatic Health Code (MAHC) standard 4.7.3.3.2.4 (current edition of the MAHC is available at www.cdc.gov/mahc/currentedition/index.html) or draining the aquatic venue(s).
4. CDC does not recommend testing the water for Crypto after hyperchlorination is completed. Although hyperchlorination destroys Crypto's infectivity, it does not necessarily destroy the structure of the parasite.
5. Shields JM, Hill VR, Arrowood MJ, Beach MJ. Inactivation of *Cryptosporidium parvum* under chlorinated recreational water conditions. J Water Health. 2008;6(4):513–20.

* Many conventional test kits cannot measure free chlorine concentrations this high. Use chlorine test strips that can measure free chlorine in a range that includes 20–40 ppm (such as those used in the food industry) or make dilutions for use in a standard DPD test kit using chlorine-free water.

What do I do about...

diarrhea in the water when chlorine stabilizer[1] is in the water?

A diarrheal incident is a high-risk event for contamination caused by Cryptosporidium (or "Crypto"), an extremely chlorine-tolerant parasite. Therefore, it is important that aquatic staff educate patrons not to swim when ill with diarrhea. To disinfect the water following a diarrheal incident, aquatic staff should hyperchlorinate, or raise the free chlorine concentration to a high concentration for a long period of time. If necessary, before attempting to hyperchlorinate, consult an aquatic professional to determine the feasibility, the most optimal and practical methods, and needed safety considerations.

Step 1: Close the aquatic venue to swimmers. If you have multiple venues that use the same filtration system—all of the venues will have to be closed to swimmers. Do not allow anyone to enter the venue(s) until the hyperchlorination process is completed.

Step 2: Remove as much of the fecal matter as possible (for example, using a net or bucket) and dispose of the fecal matter in a sanitary manner. Clean and disinfect the item used to remove the fecal matter (for example, after cleaning, leave the net or bucket immersed in the water during hyperchlorination).

VACUUMING FECAL MATTER FROM THE WATER IS NOT RECOMMENDED.

Step 3: Raise the water's free chlorine concentration (see bullets below) and maintain water at pH 7.5 or less.[2]

Step 4: Hyperchlorinate.[3] Chlorine stabilizer slows the rate at which free chlorine inactivates or kills Crypto, and the more stabilizer there is in the water the longer it takes to kill Crypto.

If the cyanuric acid concentration is 1–15 parts per million (ppm)[4]

- Raise the free chlorine concentration to 20 ppm[5] and maintain it for 28 hours or
- Raise the free chlorine concentration to 30 ppm[5] and maintain it for 18 hours or
- Raise the free chlorine concentration to 40 ppm[5] and maintain it for 8.5 hours

If the cyanuric acid concentration is more than 15 ppm, lower the concentration to 1–15 ppm by draining partially and adding fresh water without chlorine stabilizer before attempting to hyperchlorinate.

Step 5: Confirm that the filtration system is operating while the water reaches and is maintained at the proper free chlorine concentration and pH for hyperchlorination.

Step 6: Backwash the filter thoroughly after hyperchlorination has been completed. Be sure to discharge directly to waste and according to state or local regulations. Do not return the backwash through the filter. Where appropriate, replace the filter media.

Step 7[6]: Allow swimmers back into the water only after hyperchlorination has been completed and the free chlorine concentration and pH are within the operating range allowed by the state or local regulatory authority.

Establish a fecal incident log.
Document each fecal incident by recording date and time of the event, whether it involved formed fecal matter or diarrhea and the free chlorine concentration and pH at the time or observation of the event. Before reopening the aquatic venue, record the procedures followed in response to the fecal incident (including the process used to adjust chlorine concentration and pH [if necessary], the free chlorine concentration and pH, and the hyperchlorination time). You can download a Water Contamination Response Log at **http://www.cdc.gov/healthywater/swimming/aquatics-professionals/fecalresponse.html**

1. Chlorine stabilizers include compounds such as cyanuric acid, dichlor, and trichlor.
2. Ideally, the water temperature should be 77°F (25°C) or higher during the hyperchlorination process.
3. Alternative options could include circulating the water through a secondary disinfection system (for example, ultraviolet light or ozone) to theoretically reduce the number of Crypto oocysts in the aquatic venue(s) below one oocyst/100 mL as outlined in the Model Aquatic Health Code (MAHC) standard 4.7.3.3.2.4 (current edition of the MAHC is available at www.cdc.gov/mahc/currentedition/index.html) or draining the aquatic venue(s).
4. Murphy JL, Haas CN, Arrowood MJ, Hlavsa MC, Beach MJ, Hill VR. Efficacy of chlorine dioxide tablets on inactivation of *Cryptosporidium* oocysts. Environ Sci Technol. 2014;48(10):5849–56.
5. Many conventional test kits cannot measure free chlorine concentrations this high. Use chlorine test strips that can measure free chlorine in a range that includes 20–40 ppm (such as those used in the food industry) or make dilutions for use in a standard DPD test kit using chlorine-free water.
6. CDC does not recommend testing the water for Crypto after hyperchlorination is completed. Although hyperchlorination destroys Crypto's infectivity, it does not necessarily destroy the structure of the parasite.

Langelier Saturation Index

FORMULA: pH (Actual) + Temperature (°F) Factor + C.H. Factor + T.A. Factor – TDS Factor = S.I.

Temp. (°F)=	Temp. Factor
32	0.0
37	0.1
46	0.2
53	0.3
60	0.4
66	0.5
76	0.6
84	0.7
94	0.8
105	0.9
128	1.0

Calcium Hardness =	Factor
5 ppm	0.3
25 ppm	1.0
50 ppm	1.3
75 ppm	1.5
100 ppm	1.6
125 ppm	1.7
150 ppm	1.8
200 ppm	1.9
250 ppm	2.0
300 ppm	2.1
400 ppm	2.2
800 ppm	2.5
1000 ppm	2.6

Total Alkalinity =	Factor
5 ppm	0.7
25 ppm	1.4
50 ppm	1.7
75 ppm	1.9
100 ppm	2.0
125 ppm	2.1
150 ppm	2.2
200 ppm	2.3
250 ppm	2.4
300 ppm	2.5
400 ppm	2.6
800 ppm	2.9
1000 ppm	3.0

TDS = Factor

TDS more than 1000 ppm = -12.2
TDS less than 1000 ppm = -12.1

Calculation Results

- 0.3 to +0.3 = Balanced Water

Greater than + 0.3 = Carbonate Scale Formation

Less than – 0.3 = Corrosive Water

Saturation Index Worksheet

	Value	Factor	New Value	Factor
pH				
Temperature (C or F)				
Calcium Hardness (CH)				
Carbonic Alkalinity (TA)				
Sub-Total (Factors Added together)				
Total Dissolved Solids (TDS)				
Saturation Index				

	Value	Factor	New Value	Factor
pH				
Temperature (C or F)				
Calcium Hardness (CH)				
Carbonic Alkalinity (TA)				
Sub-Total (Factors Added together)				
Total Dissolved Solids (TDS)				
Saturation Index				

(OVER)

Saturation Index Worksheet

	Value	Factor	New Value	Factor
pH				
Temperature (C or F)				
Calcium Hardness (CH)				
Carbonic Alkalinity (TA)				
Sub-Total (Factors Added together)				
Total Dissolved Solids (TDS)				
Saturation Index				

	Value	Factor	New Value	Factor
pH				
Temperature (C or F)				
Calcium Hardness (CH)				
Carbonic Alkalinity (TA)				
Sub-Total (Factors Added together)				
Total Dissolved Solids (TDS)				
Saturation Index				

Water Balance Ranges

Saturation Index = -.3 to +.3

Total Alkalinity

- Measure of resistance to change of pH

Range: 60 ppm – 180 ppm

Ideal: 80 ppm – 100 ppm (High pH Disinfectants (ex. Liq. Chl.)

Ideal: 100ppm-120ppm (Low pH Disinfectants (ex. Tri-Chlor)

pH

Measure of Acid vs. Base

Range: 7.2 – 7.8

Ideal: 7.4 – 7.6

Calcium Hardness

Measure of Calcium Ions in water

Range: 150 ppm – 1000 ppm (800ppm spas)

Ideal: 200 ppm – 400 ppm

Spa Ideal: 150 ppm – 250 ppm

Temperature

Pools:

*Competition	78° - 82°
Recreation	83° - 86°
Children	84° - 86°→ 94°
Seniors/Elderly	83° - 88°
Infant	88° - 94°

Spas:

99° - 104° (Not to exceed 104°)

*Therapy Passive	94° - 98°
*Therapy Active	86° - 90°
*Swimming Lessons	82+
*Arthritis Foundation	84° - 88°
*MS	80° - 84°

Total Dissolved Solids

- Measure of all minerals dissolved in the water

Not to exceed 1,500 ppm above start-up level

*Recommended by AEA (Aquatic Exercise Association)

Note: This is the first column from pg 260 in your CPO manual

Dosages Required to Chemical Treat 10,000 gallons of Water

Function/Chemical	Given Change/Amount
Increase Free Available Chlorine	**1 ppm**
Chlorine Gas	1.3 ounces
Calcium Hypochlorite	2.0 ounces
Sodium Hypochlorite (Bleach)	10.7 fluid ounces (÷ 128oz)
Lithium Hypochlorite	3.8 ounces
Trichlor	1.5 ounces
Dichlor	2.4 ounces
Neutralize Free Available Chlorine	**1 ppm**
Sodium Thiosulfate (Neutralizer)	2.6 ounces
Sodium Sulfite	2.4 ounces
Sodium Meta Bisulfite	1.5 ounces
Increase Total Alkalinity	**10 ppm**
Sodium Bicarbonate (Baking Soda)	1.4 pounds
Sodium Carbonate	14 ounces
Sodium Sesquicarbonate	1.25 pounds
Increase pH	**0.2 ***
Sodium Carbonate (Soda Ash)	6 ounces (also raises Total Alkalinity 5 ppm)
Sodium Hydroxide (50%) (Caustic Soda)	5.5 fluid ounces
Decrease pH	**0.2 ***
Muriatic Acid (35% Hydrochloric Acid)	12 fluid ounces (also lowers Total Alkalinity 5 ppm)
Sodium Bisulfate (Dry Acid)	1.0 pound (also lowers Total Alkalinity 5 ppm)
Carbon Dioxide (CO_2)	4.0 ounces
Increase Calcium Hardness	**10 ppm**
Calcium Chloride (100%)	0.9 pounds
Calcium Chloride (77%)	1.2 pounds
Increase Stabilizer	**10 ppm**
Cyanuric Acid (Conditioner)	13 ounces

* Amounts may vary depending on initial pH levels.

NOTE: THIS CHART GIVES APPROXIMATE AMOUNTS OF EACH CHEMICAL LISTED. ALWAYS READ THE LABELS FOR EXACT AMOUNTS NEEDED FOR YOUR CHEMICAL ADJUSTMENTS.

Water Chemistry Adjustment Worksheets

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
↓			↓
	÷ 10,000 Gallons ↓	÷ ________ ppm ↓	
	X	X	=

Note: If Total is in ounces please convert to: Pounds (oz/16) or Gallons (Fl.oz./128) =

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
↓			↓
	÷ 10,000 Gallons ↓	÷ ________ ppm ↓	
	X	X	=

Note: If Total is in ounces please convert to: Pounds (oz/16) or Gallons (Fl.oz./128) =

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
↓			↓
	÷ 10,000 Gallons ↓	÷ ________ ppm ↓	
	X	X	=

Note: If Total is in ounces please convert to: Pounds (oz/16) or Gallons (Fl.oz./128) =

Water Chemistry Adjustment Worksheets

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
↓			↓
↓	÷ 10,000 Gallons ↓	÷ ________ ppm ↓	↓
	X	X	=

Note: If Total is in ounces please convert to: Pounds (oz/16) or Gallons (Fl.oz./128) =

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
↓			↓
↓	÷ 10,000 Gallons ↓	÷ ________ ppm ↓	↓
	X	X	=

Note: If Total is in ounces please convert to: Pounds (oz/16) or Gallons (Fl.oz./128) =

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
↓			↓
↓	÷ 10,000 Gallons ↓	÷ ________ ppm ↓	↓
	X	X	=

Note: If Total is in ounces please convert to: Pounds (oz/16) or Gallons (Fl.oz./128) =

Breakpoint Super-Chlorination

Removal of Chloramines or Combined Chlorine

(TC=Total Chlorine; FC=Free Chlorine; CC=Combined Chlorine)

STEP 1 (Determine desired change to achieve breakpoint)

A: TC – FC = CC

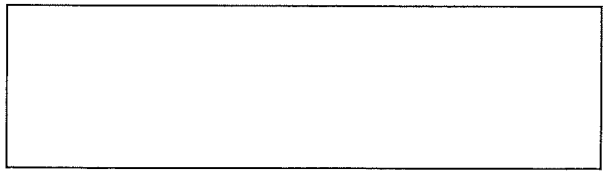
B: CC x 10 = Breakpoint

C: Breakpoint – FC = Desired Change

STEP 2 (Determine how much chemical to add to the pool)

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
	÷ 10,000 Gal.	÷ _____ ppm	
	x	x	=

1. **This pool is 75 feet long and 40 feet wide. The shallow portion of the pool is 3 feet to 5 feet in depth. How many gallons of water are in this pool?**



In this same pool Jan is losing 2 inches per day. How many gallons is she losing in a week?

2. **On a 150,000 gallon pool, the Alkalinity is 60ppm. To raise it to 100ppm, how many pounds of Sodium Bicarbonate would it take?**

3. **On a 90,000 gallon pool, the FC is 1.5 ppm. How many gallons of Sodium Hypochlorite are needed to raise it to 3.0ppm?**

4. **On a 200,000 gallon pool, the FC is 1.0 ppm and the TC is 2.5 ppm. How many pounds of Calcium Hypochlorite are needed to breakpoint super-chlorinate or remove the chloramines?**

5. **What is the Saturation Index?**
   PH 7.8, Temperature 84 degrees, Calcium Hardness 400ppm, Alkalinity 150ppm, TDS 300.

6. what is the flow rate for a pool that has a volume of 202,500 gallons & 6-hour turnover?

7. The flow rate is 125 gpm, what would the filter area of high-rate sand filter need to be if it operated at a FMR of 20gpm/ft2?

8. What is the FMR for a pool that has a flow rate of 375gpm and a Surface Area of 22ft^2?

9. The NEC 70 Article 680 electrical code requires which of the following?

A) Filter Equipment be automated
B) Lock Out/Tag Out be placed on all electrical components
C) Tables & Chairs on the pool deck be grounded & bonded
D) Electrical receptacles be located no closer than 10 ft from pool wall

10. For Combined Chlorine:
What is/are other name(s) for Combined Chlorine?

What procedure is used to determine the level of combined chlorine using a DPD test kit?

What is the highest level of combined chlorine can you have?

11. What percentage of water should be returned from the main drain (MD) compared with the surface?

A) 50% from MD and 50% from the Surface
B) All 100% from the MD
C) 90% from the MD and 10% from the Surface
D) 25% from the MD and 75% from the Surface

VI. EMERGENCY POLICIES AND PROCEDURES

A. Aquatics emergency Action Plan (EAP)-multiple persons

Guard recognizes emergency

↓

Activate emergency action plan

** 3 short whistles

Secondary rescuer (if needed) MUST be sure other guards have coverage before leaving station.

↓

Other guards on duty take over coverage

(if only two guards on, then First Aid Station must take over coverage)

↓

Clear Pool: This decision will be made by the Shift Leader or otherwise appointed Head of Shift. If Back boarding Always clear the pool.

↓

Contact victim and use proper rescue; move to safety

↓

assess victim's condition

↓

Victim is "OK"

↓

Complete Paperwork

Primary (secondary may help if needed)

Fills Out Accident Forms, Interviews Witnesses.

** Be Sure Victim/ Guardian Signs

Decline First Aid: Must Have Them Sign Off

↓

Equipment Checked & Replaced

↓

Corrective Action Taken

↓

Return to Stations

↓

Debriefing Scheduled Within 5 days

Victim Needs Care

↓

At Emergency Area

↓

First Aid Station Brings First Aid Bag, Trauma Bag, Backboard

↓

Use Universal Precautions

↓

Use Appropriate Care

↓

Follow O2/AED/backboard protocol

↓

Additional Guards Clear the pool

↓

Complete Paperwork

Primary (secondary may help if needed)

Fills Out Accident Forms, Interviews Witnesses

** Be Sure Victim/ Guardian Signs

Decline First Aid: Must Have Them Sign Off

↓

Equipment Checked & Replaced

↓

Corrective Action Taken

↓

New Guard Replaces Primary Rescuer

↓

Return to Stations

↓

Debriefing Scheduled Within 5 days

Assigned guard

↓

Call 9-911

↓

Contact OSM

↓

OSM/Front Desk

↓

Ask for help if needed

↓

Assign Staff to meet ambulance

↓

Assign Staff to Secure Facility

↓

Assign Staff to Call facility manager & P & R Director

↓

Close facility if Needed

↓

Assess Additional Needs

↓

Finalize reports

↓

Make Sure Facility Is Safe To Open

Notes:

Notes:

Notes:

Notes: