KUUL VITALITY™ EVAPORATIVE MEDIA MONTHLY MAINTENANCE REMINDER

KUUL EVAPORATIVE TECHNOLOGIES

Monthly Maintenance

DATE: _____

☐ 1. *Water flow and distribution check*

While the system's water distribution pump is running, check that:

- Water is being distributed evenly over the evaporative media
- Volume of water flow over the evaporative media is adequate to completely saturate the evaporative media
- The water distribution system is free of any restrictions
- The holes in the distribution header pipe are free and clear of obstruction

☐ *2. Filtration check*

The water system should have two filers/strainers to protect the pump. Throughly rinse and clean the:

- Coarse filter/strainer on the inlet side of the pump
- Fine filter/strainer after the pump

☐ *3. Check for organic and calcium salt deposits*

To prevent long-term, stubborn difficult-to-remove deposits, check the evaporative media regularly for algae growth and/or calcium deposits. These checks should be done weekly and can assist with planning for the next shutdown period.

☐ *4. Flushing the system and checking the water quality*

Evaporative media is capable of filtering a large amount of dust. With adequate washing, this dust along with accumulate calcium salts will be present in the system's sump/reservoir. Drain and refill the sump/reservoir if water is dirty or if evaporative media is showing evidence of algae growth and scale deposits.

☐ *5. If water pH is high*

Check the pH of the fresh water. If the pH level is above 8.0, it is recommended to conduct a thorough water analysis and investigate a dosing regimen for algae and scale control discussed in section five.

☐ *6. If the pH is neutral*

If the pH is neutral – between 6.5 and 7.5 – simply dosing the water sump/reservoir with the required algae and scaling control chemicals recommended by Portacool, LLC below will suffice.

☐ *7. Shock dosing the water for scale and algae control*

In extreme cases, a strong shock dose may be required to adequately control scale and algae growth. If it is determined shock dosing is needed, follow the steps below.

Treatment for scale/calcium deposit

- Ensure the system fans are switched off
- Follow the maintenance steps mentioned above to ensure the system is clean.
- Fill the system sump/reservoir with clean water and switch off the water supply.
- Select the proper dosage amount to dose your sump below.
- Pour the selected quantity of household white vinegar (Acetic Acid - CH3COOH) into the system sump/reservoir taking care not to spill it on yourself or clothing.
- Do not overdose the system - use the recommended dose.
- Turn on the system water pump and allow the dosed water to flow over the evaporative media for a period of six hours. Ensure the fans remain off during this process.
- After six hours, with the pump still on use a soft bristle brush to gently brush the surface of the evaporative media in a downwards direction, allowing the calcium scale crystals to dissolve. Continue brushing until all scale has been removed.
- Flush the system totally. With the evaporative media wet, use a gentle flow of water from a hose and brush to wash off any remaining small scale deposit pieces.
- With the evaporative media now clean, flush out the sump and water filters once more before using your system.

Treatment for algae

- Ensure the system fans are switched off.
- Follow the maintenance steps mentioned above to ensure the system is clean.
- Fill the system sump/reservoir with clean water and switch off the water supply.
- Select the proper dosage amount to dose your sump below.
- Pour the selected quantity of household bleach (Sodium Hypochlorite - NaClO) into the system sump/reservoir taking care not to spill it on yourself or clothing.
- Do not overdose the system - use the recommended dose.
- Turn on the system water pump and allow the dosed water to flow over the evaporative media for a period of six hours. Ensure the fans remain off during this entire process.
- After six hours, switch off the pump. Flush the sump and refill with fresh water.
- Ensure the pump is off and no water is being distributed across the evaporative media. Turn on the fans to allow the evaporative media to completely dry for two to three hours. Once the algae has dried, use a soft bristle brush to gently brush the surface of the evaporative media in a downwards direction, allowing the larger algae pieces to be brushed away.
- Flush the system completely. Wet the evaporative media with a gentle flow of water from a hose and repeat the process of using the brush to brush away the smaller pieces of algae.
- With the media now clean, clean out the sump and water filters once more before using your system.

Evaporative media systems		**Scale control**	**Algae control**
System length in [ft]	Total volume of water in [gallons]	Amount of house hold white vinegar (Acetic Acid - CH3COOH) in gallons	Amount of household bleach (Sodium Hypochlorite - NaClO) in ounces
10	39	0.2	1.0
20	52	0.3	1.3
60	105	0.5	2.6
70	118	0.6	2.9
80	131	0.7	3.2
90	144	0.7	3.5
100	157	0.8	3.8
120	183	0.9	4.5
130	196	1.0	4.8
140	209	1.1	5.1

Note: Reservoir water must be between 6.5 and 7.5 pH for the chemistry to work properly.

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