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COURTENAY

## **Clack WS1 Carbon Backwash Filter Installation & Start-Up Guide**

Thank you for purchasing a Van Isle Water System for the removal of hydrogen sulfide! With proper installation and a little routine maintenance your system will be providing treated water for many years.

Your new system comes with a start-up guide that will help guide you in the installation and start-up of your new system. Please review this start-up guide entirely before beginning to install your system and follow the steps outlined for best results.

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## Pre- Installation

1. If you are going to be turning off the water to the house and you have an electric water heater, shut off the power to the water heater before beginning installation in case water heater is accidentally drained.
2. Pick a suitable location for your filter system on a dry level spot where it won't be exposed to freezing temperatures. A minimum of 20 PSI is required. Maximum pressure is 90 PSI.
3. Get all of your plumbing parts together before beginning installation. After installation the Filter must run through a complete backwash and rinse cycle.
4. After the system is installed and running, your water may be discolored, or full of sediment or rust, particularly if this is older or corroded piping. Typically this clears up over a day or two.

## Best Practices for Piping & Drain Installation

1. See typical installation for well water. (see Fig 2). The filter is installed after the pressure tank. If your water source is city water, install on the main line coming in to the home so all inside water is filtered. You may have to rearrange plumbing if you don't want outside water treated, ie: irrigation, washing vehicles, driveways etc.

**IF YOUR WATER SYSTEM IS UNTREATED FOR BACTERIA YOU SHOULD INSTALL AN ULTRAVIOLET STERILIZER AFTER THE CARBON FILTER!**

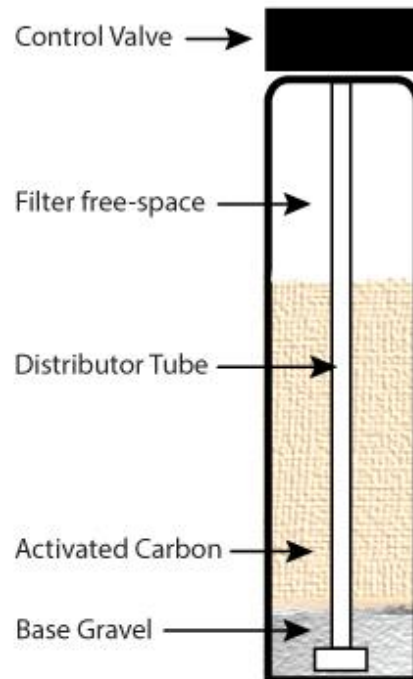
2. As you face the Clack WS1 control from the front, the water enters on the right and exits on the left. (Fig 2) The inlet and outlet are attached to the bypass valve which is marked with arrows as well.
3. Make sure there is a working gate or ball valve before the Clack WS1 Carbon filter and also one after as shown in the diagram Fig 2. A hose bib (which is a faucet that you can attach a garden hose to) is strongly recommended after the Carbon filter before the second ball valve. This makes it easy to rinse your new Carbon filter on start-up and gives you a place to test the water before it enters your household plumbing.
4. The Clack WS1 pipe fittings are 1" threaded fittings.
5. If you will be using copper piping, do not sweat the copper pipe directly on to the Clack WS1 control valve. Avoid heating up the control valve plastic.
6. You do not need unions to install your Clack WS1 control. If you need to remove it, the Clack WS1 bypass has quick-release couplings that make it easy to put the filter on by-pass and remove the filter system from the piping.

- The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible 1/2" ID tubing. Note that the drain can run up above the Clack WS1 control and into a drain, it does not have to drain down, as the filter backwashes under line pressure. Plumbing codes require an air-gap connection, so that if your sewer or septic tank backs up, it cannot cross connect with drain tubing.

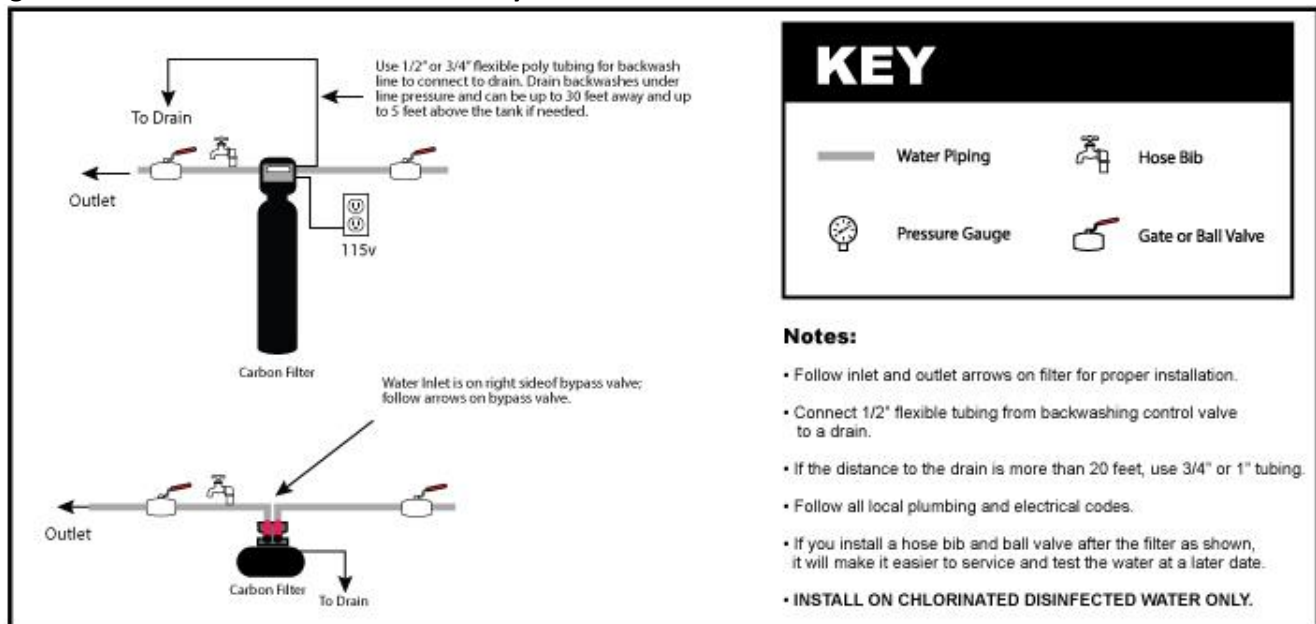
## How Your Carbon Filter Works

**FIG 1:** In your filter, the water enters the top of the tank and flows down through the media and up the distributor tube.

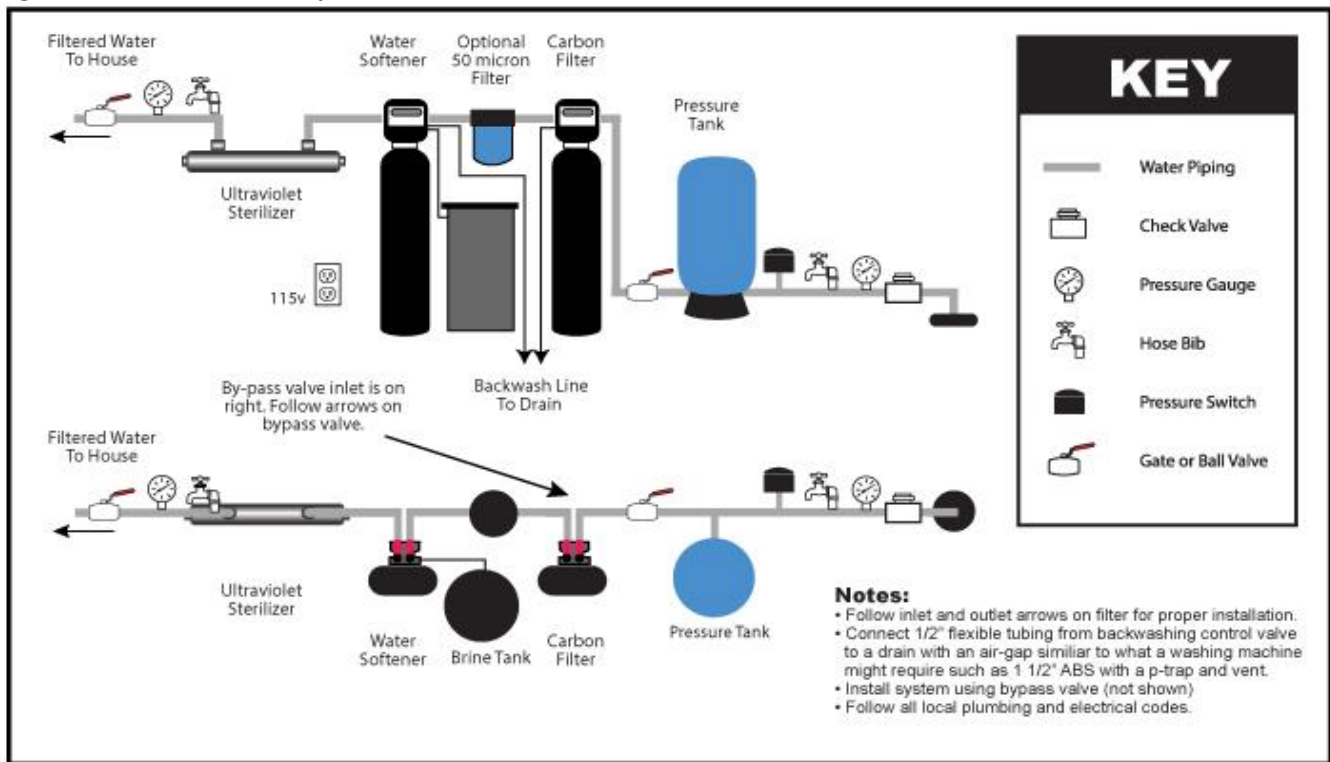
The down flow type filter removes sediment and can be backwashed, which cleans and re-classifies the media, preventing channeling.



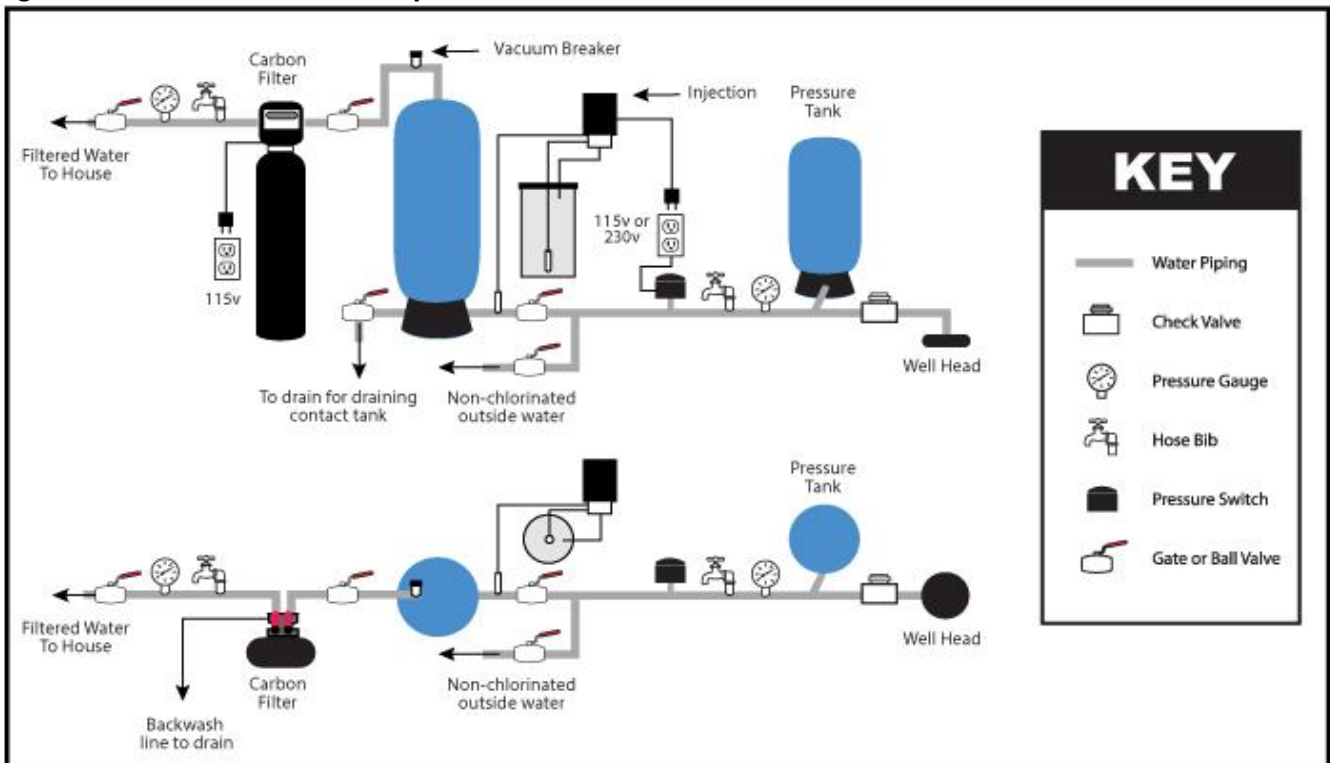
**Fig. 2 Carbon backwash filter on treated city water**



**Fig. 3: Carbon Filter with optional softener and UV sterilizer tank on well water**



**Fig. 4: Carbon Filter Chlorination System**



## Installation Instructions

Fig. 5: Carbon WS1 Control Valve



1. If not already installed lubricate the by-pass valve o rings with some vegetable oil or silicone grease and connect the bypass assembly to the Clack WS1 control by sliding the bypass valve firmly into the body of the Clack WS1. Once bypass is in far enough, hand tighten unions.
2. See by-pass valves. If red valve handles are in-line with pipe they are in service, not bypass. Move both valves clockwise (Fig. 8) to the bypass position if not already in bypass.
3. Now install your water pipes to the Clack WS1 bypass end connectors. Make sure inlet is installed to the 'In' pipe connector on the bypass valve and outlet is on the "Out" connector.
4. Connect some flexible tubing from the drain connection on the Clack WS1 control valve to a suitable drain such as a septic tank or drain to a sewer complete with air gap. It is OK to run the drain line up and over the Clack WS1 Carbon filter up to 4 feet above the top of the tank. If the drain line will be more than 20 feet, use larger diameter tubing such as  $\frac{3}{4}$ " or 1". Note that it is desirable to be able to run the drain line into a bucket in order to test the backwash flow rate in the future. This is why hard piping the drain line is discouraged, however, if you do use hard PVC piping for the drain line, and you are able to remove the hard PVC drain piping and attach flexible tubing should you ever desire for testing purposes, it is OK to use rigid PVC pipe for the drain. Make sure the drain tubing is firmly clamped to the barbed fitting with a hose clamp to prevent leaks.



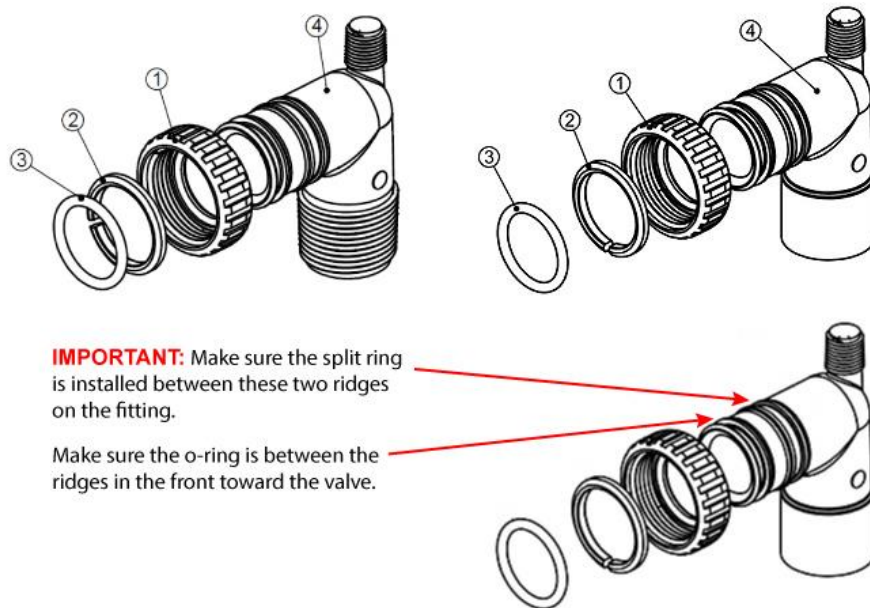
5. Plug in your Clack WS1 control valve to an outlet.

6. Set Current Time of Day. Press “Set” button until of time of day is displayed. The hour will start to flash. Use the up or down arrows to select the hour. Make sure you select AM or PM. PM will have an arrow pointed at it when selected. . Press the Up or Down button until the correct hour is displayed. Then press the Set button to select the minutes. Press Set once more to exit.

**Fig 6: Pipe connectors on WS1 Backwash Control Valve**

<b>C0710-PVC – ¾” x 1” PVC Solvent 90° Assembly</b>			
No.	Part No.	Description	Qty.
1	C3151	Nut 1” Quick Connect	2
2	C3150	Split Ring	2
3	C3106	O-Ring 216	2
4	C3189	Fitting ¾”x1” PVC Solvent 90°	2

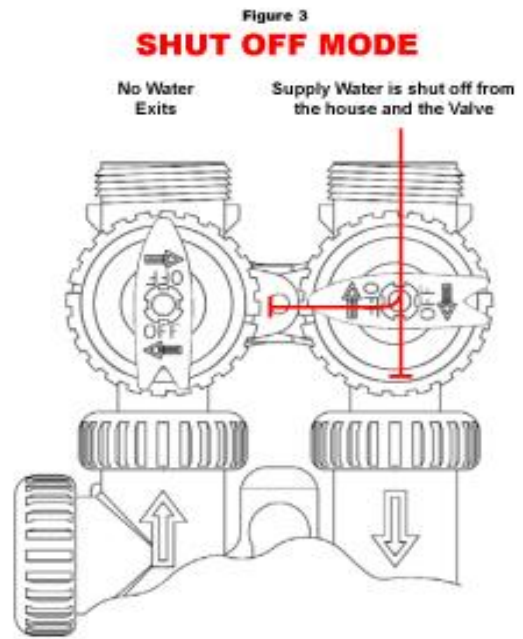
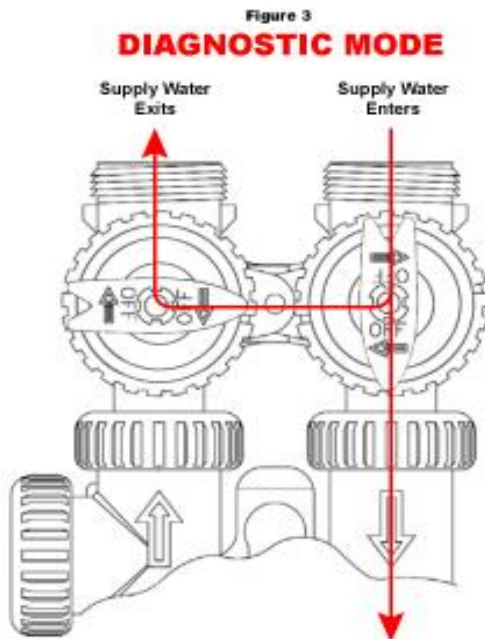
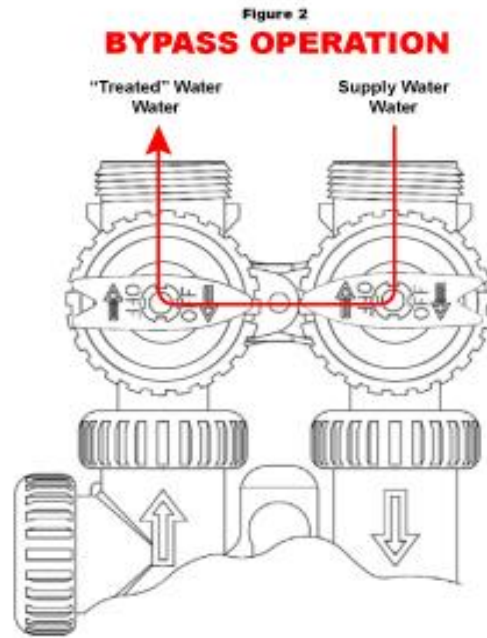
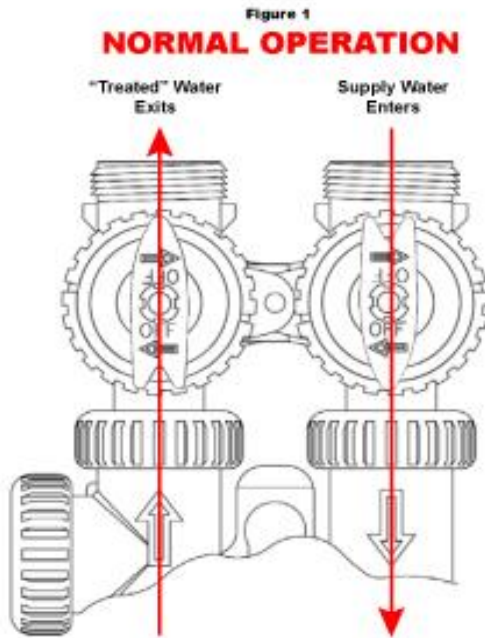
<b>C10-PVC – 1” PVC Male NPT Elbow Assembly</b>			
No.	Part No.	Description	Qty.
1	C3151	Nut 1” Quick Connect	2
2	C3150	Split Ring	2
3	C3106	O-Ring 216	2
4	C3149	Fixing ¾”x1” Male NPT Elbow	2



7. Press Set and the Up arrow together for about 5 seconds. Set Regeneration Time hour using up and down arrows not forgetting AM or PM. 2:00AM is the default.

Fig. 8 – Bypass valve

## BYPASS VALVE OPERATION





### Turning on the water:

8. Now you are ready to turn on the water. Turn on the water and leave the filter on bypass and check for leaks.
9. Press the REGEN button for several seconds which will start a manual backwash. Once controller is in backwash unplug it so it will stay in backwash as long as necessary.
10. Now you can slowly turn the bypass valve to the service position. First open the Inlet Side of the bypass valve. Second slowly open the Outlet side of the bypass until it is in the full service position.
11. There should be no Carbon media coming out of the drain line, but the water will be gray or dirty looking. Leave the controller in backwash as long as it takes for the water to run clear. Once clear you can plug the controller back in and let it finish the backwash and rinse cycle. The backwash takes 10 minutes. The rinse takes 6 minutes. It is recommended to put the filter through a second backwash before putting into service for the house.
12. Note it is normal for some small amount of Carbon dust and fines to come out during the backwash, although you do not want to see a large amount of media coming out, which would mean you have very high water pressure, or the drain flow for the controller is missing.
13. If possible verify that the backwash flow is 5 gallons per minute, which is the recommended backwash flow rate for 1.0 and 1.5 cubic foot models. If you have a 2 cubic foot Carbon it should be backwashing at 7.5 gallons per minute. You can easily run the drain hose to a bucket and using a watch verify the flow rate in gallons per minute. An adequate backwash is critical to properly clean the media.
14. If your chlorinating your well and water system you will have to put your carbon filter on bypass while distributing chlorine through the system as the carbon will remove the chlorine from the water.

## Maintaining Your WS1 Carbon Filter System

There is little or no maintenance required. Every 2 to 4 years the media can be replaced for best results. You will know when it should be changed because taste, odor or chlorine will slip through the media

## How to Change the Carbon in Your Filter System

It is easy to change the carbon media, depending on the size of the filter system you have. One person can easily do it with no assistance. If you have a 2 cubic ft. size or larger, you may want to have some assistance.





### Steps to take:

1. Unplug the control valve and shut off the water to the filter. You can do this by closing the bypass valves so the filter is on bypass.
2. Release the pressure inside the filter by pressing the REGEN button which will start a manual backwash, and instantly release the pressure.
3. After the pressure is released you can remove the filter from the pipes by unscrewing the bypass nuts shown in the image.
4. Now simply unscrew the control valve from the top of the tank. Usually no pliers or tools are required.
5. Place some plastic tubing or a siphon hose inside the distributor tube and siphon off the water from tank. It is not absolutely necessary to drain the water out first, you can leave it full but the tank will be easier to lay on its side if it is drained.
6. Lay the tank on a large plastic tarp or sheet of plastic.
7. Place a garden hose in the tank and begin to flush out the carbon out on the tarp. Once the carbon starts to flow out, you can pull out the distributor tube.
8. Flush out all the carbon and gravel and dispose.
9. Rinse out the tank well. If you are on well water, or other non-chlorinated source, add ½ cup of chlorine bleach and a few gallons of water and rinse the inside of the tank with this bleach solution. Rinse thoroughly.
10. Add new gravel and carbon and follow start-up instructions to backwash and rinse carbon media thoroughly before putting back into service.