Do-It-Yourself (DIY): How to Winterize Underground Sprinkler/Irrigation System by Blow-out Method Using an Air Compressor

Water expands as it turns into ice, resulting in a volumetric expansion sufficient to crack pipes, fittings, valves, and sprinkler heads that are made of brass, rigid plastic, and steel. Winterizing involves removing sufficient amount of water from the irrigation system to prevent damage due to freezing.

Congratulations! You are reading this because you are a homeowner who cares about doing the job right to preserve the functionality and value of your home. All too often, sprinkler systems are damaged or not properly winterized by commercial companies that are unfamiliar with the construction of your sprinkler system (or simply, they do not take the time to do the job right). By doing it yourself, you can make sure that it is done right while saving a lot of money too!

Consult local codes prior to winterizing the sprinkler system. The following are general procedures only; specific procedures that apply to your system may be different from these procedures. Read the instruction manual and safety information of your sprinkler system and equipment before performing these procedures.

Air compressor tank size should be as large as possible, preferably 15 gallons or larger. The objective is to move a large volume of low pressure air to purge water out of the system. The compressed air hose should have a minimum of 3/8" inner diameter with 1/4" NPT connections (most hoses for sale at hardware stores meet this requirement). An adapter that will allow you to connect your air compressor to the sprinkler system or garden faucet/spigot is available at https://vibrantyard.com/.

If your sprinkler system is connected to city/municipal water supply, you are likely to have a backflow prevention assembly such as Pressure Vacuum Breaker (PVB). PVB is used to keep contaminated water from entering the city water supply. Figure 1A and 2A show two common plumbing systems that are connected to city water supply.

- Figure 1A shows a system where the water upstream of the PVB can be sufficiently drained by gravity so compressed air is not needed to the evacuate water. This type of system is common where the sprinkler supply valve is located in the basement. If your system is similar to Figure 1A, follow the procedures in Figure 1A to winterize the PVB and Figure 1B to winterize the sprinklers.

- Figure 2A shows a system where the water upstream of the PVB cannot be sufficiently drained by gravity so compressed air is required to evacuate the water. This type of system is common where the sprinkler shut off valve is located outdoor. If your system is similar to Figure 2A, follow the procedures in Figure 2A to winterize the PVB and Figure 2B to winterize the sprinklers.

If your sprinkler system is connected to a well, you may not have a PVB. Figure 3 shows a common plumbing system that is connected to a well. If your system is similar to Figure 3, follow the procedures in Figure 3 to winterize the sprinklers.

Figure 1A. Winterizing Pressure Vacuum Breaker Assembly Using Gravity

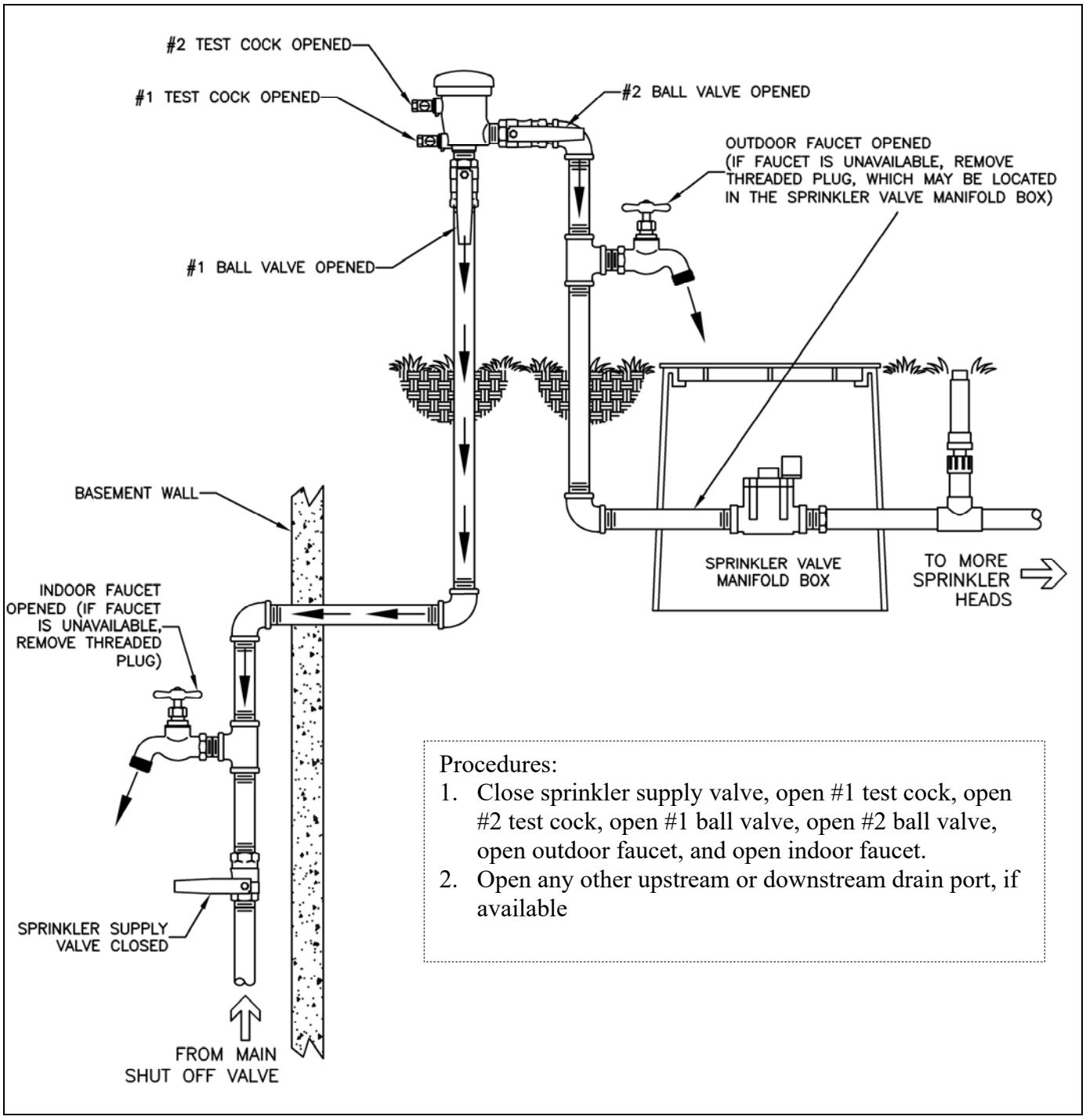
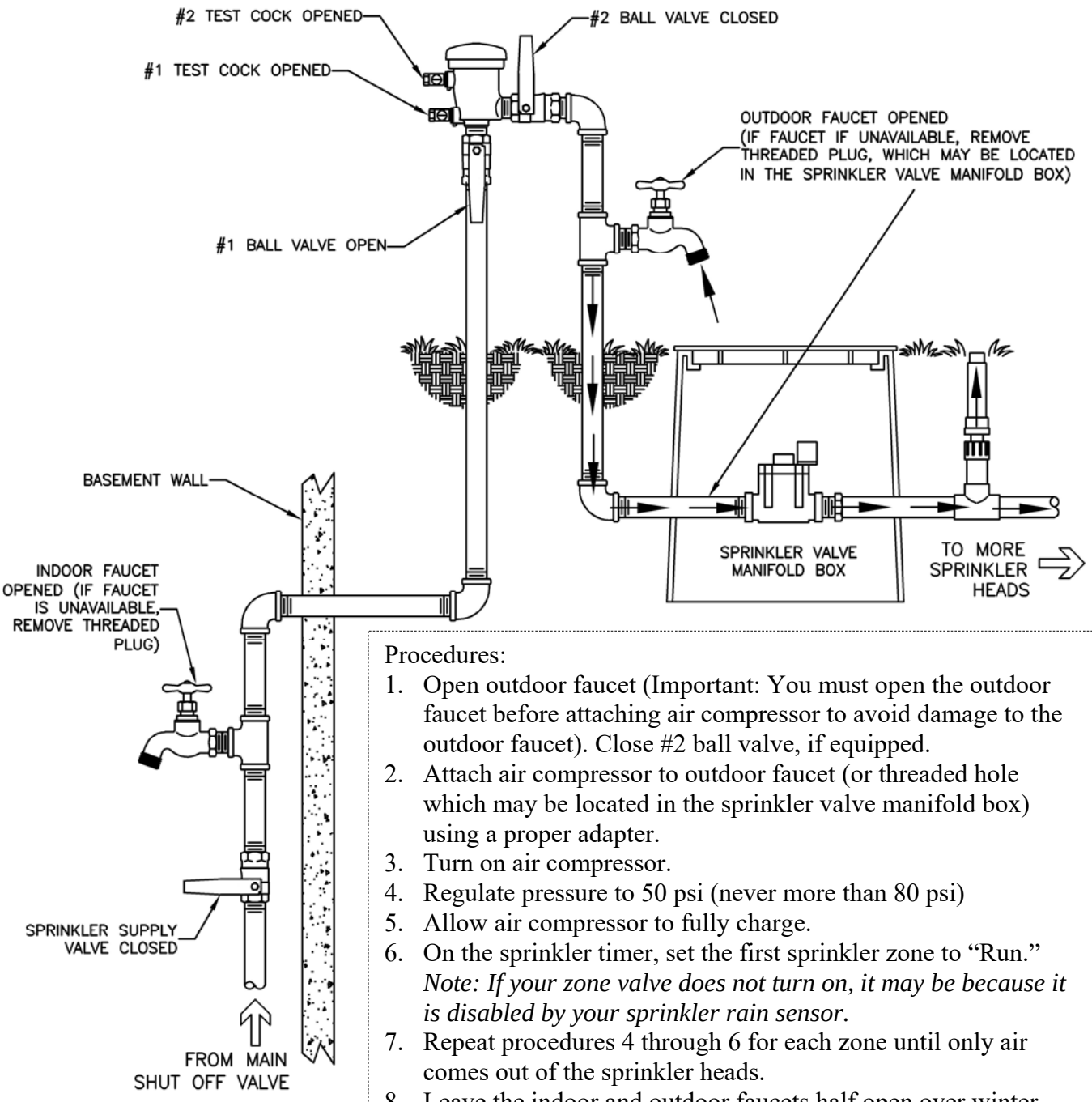


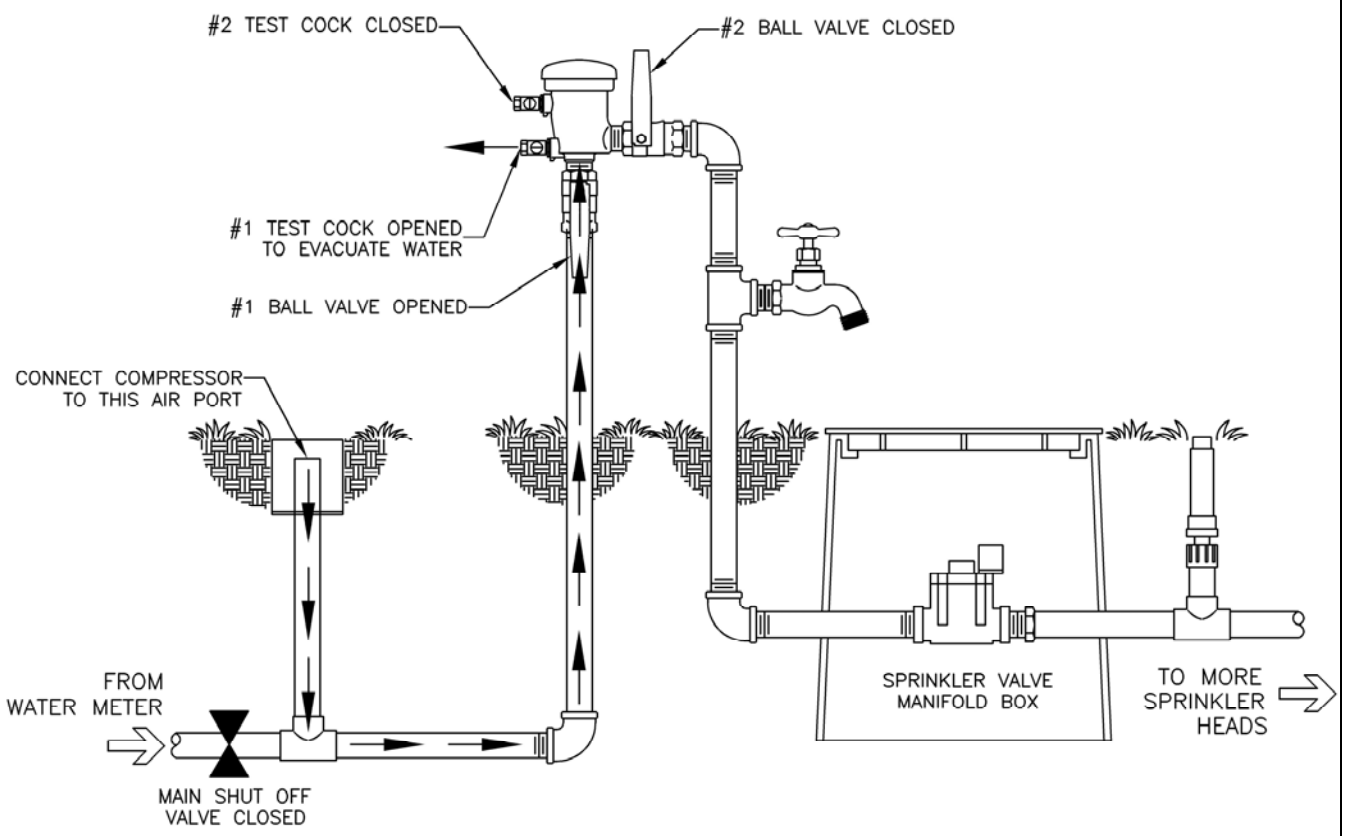
Figure 1B. Winterizing Sprinkler System Using Air Compressor



Procedures:

1. Open outdoor faucet (Important: You must open the outdoor faucet before attaching air compressor to avoid damage to the outdoor faucet). Close #2 ball valve, if equipped.
2. Attach air compressor to outdoor faucet (or threaded hole which may be located in the sprinkler valve manifold box) using a proper adapter.
3. Turn on air compressor.
4. Regulate pressure to 50 psi (never more than 80 psi)
5. Allow air compressor to fully charge.
6. On the sprinkler timer, set the first sprinkler zone to "Run." *Note: If your zone valve does not turn on, it may be because it is disabled by your sprinkler rain sensor.*
7. Repeat procedures 4 through 6 for each zone until only air comes out of the sprinkler heads.
8. Leave the indoor and outdoor faucets half open over winter
9. Leave both ball valves #1 and #2 half open (lever at 45-degree angle) over winter
10. Leave both test cocks #1 and #2 half open (at 45-degree angle) over winter

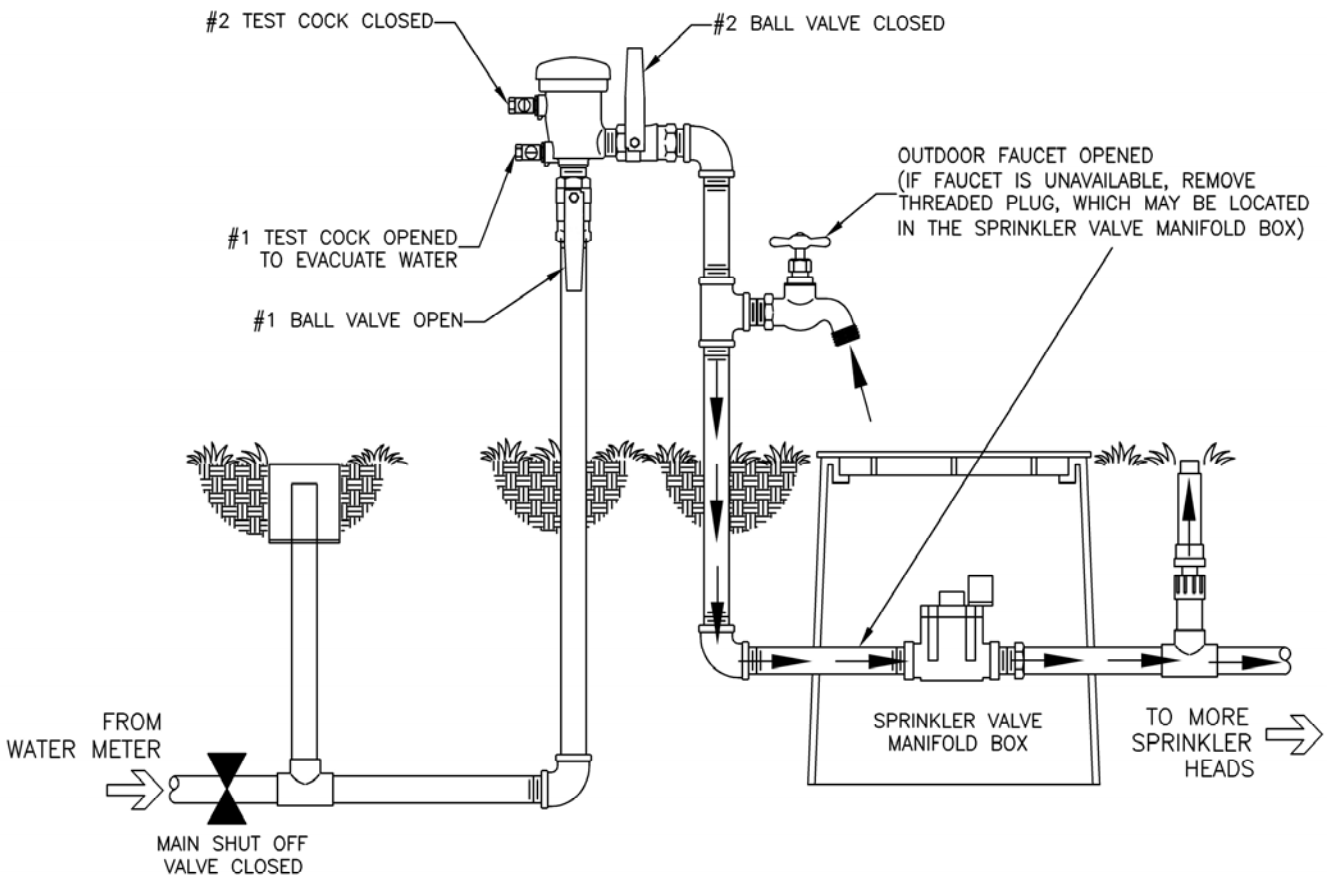
Figure 2A. Winterizing Pressure Vacuum Breaker Assembly Using Air Compressor



Procedures:

1. Close main shut off valve, open #1 test cock, open #1 ball valve, close #2 ball valve, and close #2 test cock.
2. Connect air compressor to air port using a proper adapter.
3. Inject 20-50 psi compressed air to the air port to evacuate upstream water through #1 test cock.
4. Disconnect the air compressor from air port. Replace cap on air port
5. Open #2 test cock, open #2 ball valve, and open outdoor faucet/spigot to drain water from the PVB (not shown in the figure).

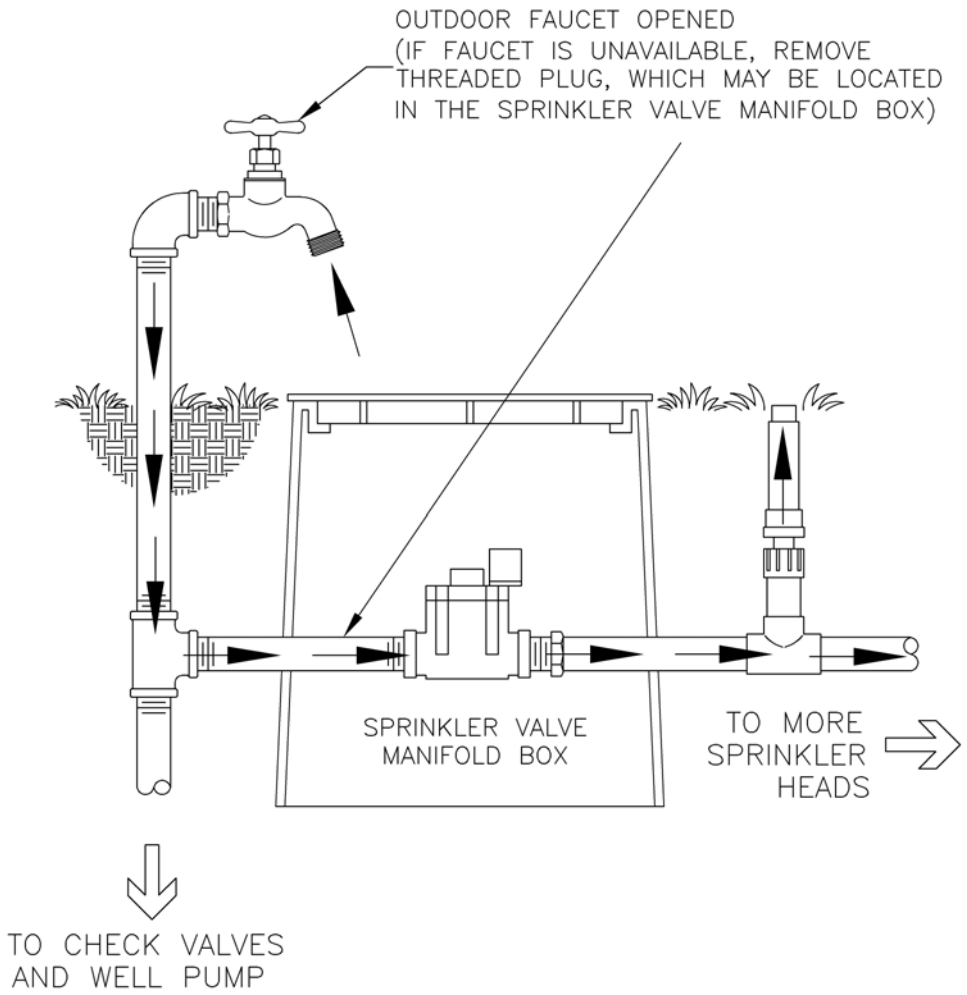
Figure 2B. Winterizing Sprinkler System Using Air Compressor



Procedures:

1. Close #2 ball valve.
2. Open outdoor faucet (Important: You must open the outdoor faucet before attaching air compressor to avoid damage to the outdoor faucet).
3. Attach air compressor to outdoor faucet (or threaded hole which may be located in the sprinkler valve manifold box) using a proper adapter.
4. Turn on air compressor.
5. Regulate pressure to 50 psi (never more than 80 psi)
6. Allow air compressor to fully charge.
7. On the sprinkler timer, set the first sprinkler zone to "Run." *Note: If your zone valve does not turn on, it may be because it is disabled by your sprinkler rain sensor.*
8. Repeat procedures 5 through 7 for each zone until only air comes out of the sprinkler heads. Allow enough time for the air compressor to cool between each zone to prevent overheating.
9. Leave the outdoor faucet half open over winter
10. Leave both ball valves #1 and #2 half open (lever at 45-degree angle) over winter
11. Leave both test cocks #1 and #2 half open (at 45-degree angle) over winter

Figure 3. Winterizing Sprinkler System Connected to a Well



Procedures:

1. Turn off the electrical power supply to the well water pump.
2. Open outdoor faucet (Important: You must open the outdoor faucet before attaching air compressor to avoid damage to the outdoor faucet)
3. Attach air compressor to outdoor faucet (or threaded hole which may be located in the sprinkler valve manifold box) using a proper adapter.
4. Turn on air compressor.
5. Regulate pressure to 50 psi (never more than 80 psi)
6. Allow air compressor to fully charge. Most wells are equipped with check valves that will prevent the compressed air from leaking through well pump.
7. On the sprinkler timer, set the first sprinkler zone to "Run." *Note: If your zone valve does not turn on, it may be because it is disabled by your sprinkler rain sensor.*
8. Repeat procedures 5 through 7 for each zone until only air comes out of the sprinkler heads. Allow enough time for the air compressor to cool between each zone to prevent overheating.
9. Leave the outdoor faucet half open over winter