



Operating Procedures for Working on an Irrigation System

Name of Task:

Working on an irrigation system

Description of Task:

Pressurizing a system in the spring, working on plugged sprinkler heads, blowing air through the system when shutting it down.

General Information

1. The irrigation system is normally pressurized from April to Mid-October.
2. No backhoe work or similar activity is permitted on site without first performing an irrigation location process in the area in question.
3. Personal injury can occur in the event repairs are made without following protocol which includes ensuring that the area of repair or servicing is properly isolated and pressure is removed from the area of repair.
4. Remember that system pressurization means that pressure exists at the base of the sprinkler.
5. Please remember that all greens and tees may have separate isolation valves.
6. In order to isolate a fairway, there are at least two valves that must be isolated.
7. There is a valve key log book that outlines what each valve shuts off and the valve key number is located underneath the associated valve box cover.
8. Even when you shut down the valves to make the repairs, make sure you test the pressure of the pipe by using a valve key test located in close proximity to the repair area. In the event a valve key is not close to the valve, the procedure is to go to the next sprinkler located near the repair and manually activate the solenoid.
9. When the valves are shut off, the procedure is to leave the valve cover in an upside down position which indicates a repair is underway. You should also place a tag on the sprinkler with your name on the tag to inform others as to who is doing the work. If you come across a sprinkler head with a tag on it, do not attempt to do work on the

sprinkler head without consulting with the owner of the tag first. (This is part of the Lock Out and First Line Break procedure.)

10. No employee or any other person is permitted to drive any instrument or object into the ground without authorization from the Superintendent's office.
11. Only authorized employees are permitted in the pump houses.
12. Instruments used to operate isolation valves must be used by authorized employees which include the course Superintendent, assistant Superintendent and the irrigation technician.
13. When performing service work near any body of water, at least two employees must be involved with a third employee available with a cell phone.
14. Always follow the first line break and lock out procedure!

Operating Instructions

General Description of the Process:

There are many irrigation systems so there are some variables with each property but the principles should remain the same. When a system is being pressurized in the spring, it would be recommended to run the system at a reduced operating pressure for a couple of cycles. This is completed to allow the air to escape from the system at a lower operating psi (I drop mine to 95 operating from 130) therefore reducing the level of severity of air compression in the system.

When the heads are required to be turned on manually (Sometimes they will not pop up by radio command for a variety of reasons) at no time should the person's face or body be positioned over the body of the sprinkler. The manual key can be inserted, and at arm's length in a crouched position (on one knee) and looking away from the head. It would also be a good idea to wear helmet, with face shield as there was an incident where the above work was being done and because the head was located in the lower part of the golf course there was a buildup of compressed air. The head did separate and caught an irrigation tech in the mouth (he was looking at the irrigation head, not away).

Doing Repair Work

Isolation valves are closed.

If a quick couple is available within the isolated area it should be inserted to make sure the proper valves are isolated and working properly and also decrease most of the pressure in the system. If possible, one at the higher elevation and one at the lower elevation would be ideal. The valve(s) should remain turned on to make sure pressure in the system does not build back up if there is a slow leak in an isolation valve.

Sprinklers within the close proximity of the repair should be activated (manually or radio controlled) to release any built up pressure in the specific area of the repair and to reconfirm valves are isolated and pressure has been reduced.

The main issue of possible injury at this stage comes when the lower valve snap ring is removed. Helmet with face shield should be required as it is almost impossible not to have the head directly over the sprinkler head when removing the snap ring on the lower valve.

During Shutdown at the end of the Season

It is equally important to not put any worker in the line of fire when blowing air through the system in preparation for the end of the season shutdown. There is always a possibility that a sprinkler head could be plugged and over pressurizing the line could cause it to blow apart. Any person within that area could suffer an injury which is why this should only be done when there are no golfers on that section of the course.

To Summarize:

The most vital step is to remove pressure from system and reconfirm that the system pressure is reduced (and not allowed to rebuild) before removing the lower snap ring. Just because it is assumed the valves are closed, pressure is still trapped within the zone. Reduce with quick coupler's ideally high and low elevation points, run sprinklers in close proximity of sprinkler being worked on to reconfirm pressure has been reduced. Proper PPE should be used when removing lower snap ring/valve. Please remember that water is not compressible, but air is and there have been serious injuries resulting from not bleeding the lines to atmospheric pressure!

Safety Concerns:

1. What Personal Protective Equipment is required? A helmet with a face shield, protective clothing, footwear depending on the weather and gloves.
2. Are there any special safety procedures that need to be established? No worker shall perform work on any irrigation system until they have been trained as to all of the potential hazards of the job by their Superintendent; know how to prevent an injury, be aware of what PPE to wear and how to wear it and to know when to warn others away from the area. Any person doing this work must be trained as how to execute a first line break and lock out procedure, show competency in doing so and have their training records documented to prove that this training has been done.
3. Has a Pre-Start up Safety Review or a Job Safety Hazards analysis been performed? Date of last review.
4. Specific training required? How to perform a first line break, how to remove a sprinkler head, repair it and then reinstall it.

5. Ergonomic issues? Physical Demands Description been completed? While doing this work, workers may put themselves into poor postures for short periods of time. It is important that they do not exert too much force or strain on their bodies while they are in those postures.
6. Any Environmental concerns? No hazardous chemicals are to be used during this process.
7. Specific tools and equipment needed? The correct tools are needed for removing snap rings and valves.
8. Area safety rules described and communicated to all employees? The safety rules for this work are to be included in any training that has been done by the Superintendent. Warning signs are to be posted in the areas of the course where the work is taking place to alert all workers and golfers.
9. Emergency shutdown procedures and protocols established and in place? It is important that any person working on an irrigation system has a means of communication in the event of an unusual incident or injury.

Employees available for training: (List names here.)

Superintendent

Reference Materials:

CEsafety Lock Out/First Line Break Procedure

Review Date:

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