COUNT YOUR TURNS

By Steve Freeman

Hello readers. During my on-site visits I'm often asked, how do you know when a main line valve is fully open or closed? Simple, count your turns. Here is a simple mathematical formula for how to do so. Typically, the count of full turns on the valve wrench it takes to fully open or close a valve is three times the size of the pipe, plus two or three (or so). Here is an example. 4" valve: 3 X 4 = 12 + 3 = 15. It should take about 15 turns to fully close a 4" valve. I'll give a few more.

6" valve 3 X 6 = 18 + 3 = 21 turns

8" valve 3 X 8 = 24 +3 = 27 turns

10" valve 3 X 10 = 30 + 3 = 33 turns

12" valve 3 X 12 = 36 + 3 = 39 turns

Most often on older valves you will not be able to achieve the full amount of turns on the first try, this is caused by corrosion or tuberculation in the valve seat. I would suggest opening a hydrant at a low flow on the line you are trying to close, reverse the turns on the valve three to four times, then close again. Repeat this process until all turns are achieved. Remember to keep count of all turns, you will gain turns each time. The running hydrant will create a higher velocity flow on the water main helping to remove the tuberculation from the valve seat. Once the hydrant stops flowing, chances are the water main is now shut down. Counting your turns will also assist in identifying an unknown water main size.

Another question I am often asked is how to tell if a valve is right or left close? The industry standard is a right hand or clockwise closing valve. Occasionally you will come across a valve that operates in the opposite manner. The incorrect valve may have been unknowingly delivered by the distributor or the operation specialist did not realize its operational direction until after it was installed. This can be a very confusing in any situation. A couple of ways to tell if it is a left or counterclockwise close valve is to again, open a hydrant to a low flow, turn the valve in both directions, counting the turns, and watching flow from the hydrant. If the flow drops or stops, the valve is closed. As mentioned above, when closing a valve and backing off three to four turns and closing again to clean the seat, you will gain turns. When opening, you will not gain turns, when it stops it's open. If you gain in turns when you think you are opening, it's possible it is a left or counterclockwise turn valve, and you are actually closing it. If you discover a left-handed turn valve, be sure to make note of it on your maps, in your valve books and files. It may help to paint the inside of the valve box cover red to identify.

Valves, especially older ones, can be difficult to operate, often hard to turn. Try a few turns on the wrench then back a few, repeating, working slowly and steadily. In most cases all turns are achieved for full closure. Counting your turns provides useful knowledge to the operation specialist, such as full closure, main size, and direction. If you would like more information on this topic or if I can provide any assistance to your system, please feel free to reach out to me at freeman@nyruralwater.org or leave a message (518) 828-3155 ext. 220. NYRWA will assist you with a valve exercising program and we have handheld units that we loan out to our member systems. Keep the count and together we all can continue to provide Quality on Tap!

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