

3R Valve Abstract

Prior to the release of the 3R Valve in March 2018, attempts to maintain aquifer recovery, recharge, and regulation while remaining compliant with minimum potable water treatment and distribution standards set forth by NSF 61 were unsuccessful. Current regulations require all components used in potable water applications to be tested and certified to meet NSF 61 standards. With the 3R Valve, filtered treated water can be recovered into potable water drinking wells while maintaining NSF 61 standards. To meet the NSF 61 standard, each valve component in contact with water was submitted to the NSF organization for compliance testing. The components were placed in a water bath, and submerged in multiple fixed water volumes under varying pH. After a period of time, the fluid was tested for a range of contaminants or toxins like lead, nickel, and other hard metals. The toxicology results from NSF 61 concluded that the assembly has a slightly high percentage of nickel content under acidic conditions (water pH below 6). To be NSF 61 certified, the valve will have a minimum daily flow rate disclaimer. The operator shall move 900 gal/day (minimum) to meet the NSF 61 requirements. Steps are being performed to identify which component is responsible for the nickel contamination. The identified item will be manufactured with a different metal and retested in an attempt to remove the minimum flow restriction. With a fully NSF 61-compliant 3R Valve, private owners and municipalities will be able to recover, recharge, and regulate aquifers while meeting potable water drinking standards. The 3R Valve is currently the only known solution for this application that meets NSF 61 standards.