T3: Tanks, Tips, and Trends . . .

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April Showers Bring . . . Water Reuse Information ~Pages 1-2~

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April Showers Bring . . . Water Reuse Information

Pardon the twist on the pun above, but in this April's T3, we're going to discuss water reuse and its importance.

In today's climate of shrinking water resources, mega-droughts, and rising pollution of our water resources and the increasing costs of fresh water supply, it is important to consider water reuse.

When demand exceeds supply, where do we plan to get new sources of potable water? Whatever options one considers, - i.e. water reuse, desalinization, importation, conservations, etc. - cost is likely to be a deciding, if not **THE** deciding, factor.

Water reuse involves taking wastewater, giving it a high degree of treatment, and using the resulting high-quality reclaimed or recycled water for a new, beneficial purpose. Extensive treatment and disinfection ensure that public health and environmental quality are protected. Reclaimed water has been used for crop irrigation for more than 100 years, landscape irrigation for more than 70 years, and drinking water augmentation for more than 40 years.

A recent report by the Water Reuse Foundation determined that water reuse or ***direct potable reuse*** (DPR) is at least as economical as other available alternatives. Although this progressive option is still stigmatized by the dreaded "toilet to tap" label, it is gaining ground as a viable option to other alternatives, especially in drought-ridden areas like the western United States. Texas and New Mexico have DPR facilities and more are being planned in other areas as hard-hit by water shortages and drought.

Why should we reuse water? Water reuse offers a climate independent water source that is dependable, locally-controlled, and generally beneficial to the environment. Water reuse allows communities to become less dependent on groundwater and surface water sources and can decrease the diversion of water from sensitive ecosystems. Additionally, water reuse may reduce the nutrient loads from wastewater discharges into waterways, thereby reducing and preventing pollution. This "new" water source may also be used to replenish overdrawn water sources and rejuvenate or reestablish those previously destroyed.

How can recycled and/or reclaimed water benefit us? Recycled water can be used in numerous applications to satisfy most water demands, depending on the level of treatment. The water is treated to meet regulatory guidelines for the intended end use. Typical uses for recycled/reclaimed water include:

- Surface irrigation of orchards & vineyards
- Landscape impoundments
- Wetlands, wildlife, water recharge, and habitat, & stream augmentation
- Industrial cooling processes
- Toilet Flushing
- Landscape & golf course irrigation
- Food crop irrigation
- Vehicle washing
- Potable reuse (typically recharge of groundwater or surface water to augment drinking water supplies).

How is water reclaimed? Water utilities use a variety of well-tested and reliable treatment processes to recycle/reclaim water. Utilities generally describe the various stages of treatment rather than the than the technologies utilized when referring to water quality, as there are multiple treatment techniques for achieving essentially the same result. The number of treatment steps will vary based on how the water will be used. Most recycled water, however, will undergo some form of disinfection.

Is reclaimed/recycled water safe? Reclaimed water is highly engineered for safety and reliability so that the quality of reclaimed water is more predictable than many existing surface and groundwater sources. Reclaimed water is considered safe when appropriately used. Reclaimed water planned for use in recharging our aquifers or augmenting our surface water receives adequate and reliable treatment before mixing with naturally occurring water and undergoing

natural restoration processes. Some of this water eventually becomes part of our drinking water supplies.

How is recycled and/or reclaimed water different than raw water? Through the natural water cycle, the earth has recycled and reused water for millions of years. Water utilities use technology to speed up these natural processes. The Colorado River and the Mississippi River are two common sources of raw water in the United States. Along these rivers, communities often discharge wastewater upstream from other communities that will later treat the water for drinking purposes. The water from these rivers has been reused, treated, and piped into the water supply a number of times before the last downstream user withdraws the water. Water that is perceived as raw water has often been used recently. The quality of the water is much more important than the source of the water. Water utilities employ the best technology and follow stringent guidelines to treat water to a quality commensurate with the intended use.

Does recycled/reclaimed water need to be kept separate form other water? Non-potable recycled water goes through a separate pipeline system to the customers. It is completely separate from the drinking water pipeline system. Periodic cross connection tests ensure that the non-potable recycled water pipelines are not accidentally connected to the drinking water system. In addition, there is ongoing monitoring and testing of the non-potable recycled water and drinking water systems to protect the public's health.

Who regulates water reuse? Several states consider reclaimed water viable as a water source alternative, and have developed regulations with specific water quality requirements and or treatment processes for a variety of reuse applications. In other states water reuse regulations have been developed with the primary intent of providing a disposal alternative to surface water discharge. A few states have no specific regulations or guidelines on water reclamation and reuse, although programs may still be permitted with approval on a case-by-case basis. In 2012, the U.S. Environmental Protection Agency released an updated technical document entitled Guidelines for Water Reuse, which was developed specifically for application in those states with no regulations for all or some type of reuse.

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