



The United Sludge-Free Alliance Recommended Reading

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Is Reclaimed Wastewater Too Contaminated to Use, or Too Valuable to Waste?

Love That Dirty Water

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Recycled Wastewater Contaminates Crops

Recycled water is being used extensively for irrigation in the Salinas Valley. There are about 12,000 acres of leafy green and other consumed raw crops in that area, and the reclaimed water from the Monterey sewer plant goes out to these crops. Salinas is an area that has experienced numerous problems with pathogen-contaminated foods, but the state has seldom, if ever, looked at recycled water as part of the problem. Why? Answer, in part: too much political capital at risk.

In Orcutt, part of the Santa Maria Valley, recycled water is used for irrigating strawberries and broccoli. The county owns the sewer plant that produces this water. When I explained to officials there why we-myself, with a few other interested scientists-were testing the water, they refused to allow us to test, and then I was contacted by county counsel. We have looked at six other sewer plants that are licensed by the state to produce similar water under Title 22, and all produced chlorine-resistant bacteria that were released in the final product.

We looked more closely at two, Santa Barbara's and Goleta's, and noted multidrug-resistant bacteria coming through in the finished product. In the case of Santa Barbara, our Kirby Bauer test has 12 antibiotics-Santa Barbara's finished recycled water contained bacteria that were resistant to 11 of the 12 antibiotics and also were chlorine-resistant. This is water used on school playgrounds and parks. The state allows cities that produce recycled water to force its use on new developments. In the case of Santa Barbara, the city took the Montecito Country Club to court and forced it to accept recycled water for the golf course. The club apparently had refused on grounds of liability, which, considering the levels of pathogens, was a reasonable response. Nonetheless, the city prevailed.

In the Santa Rosa area, there is a push to irrigate thousands of acres, mainly vineyards, with recycled water. I've been told that the main underlying reason is that the effluent, when released to the Russian River, does not and cannot meet water quality standards. A similar situation prevails in Santa Paula-the water cannot meet standards and thus cannot be released to the river.

Thus the solution is to shunt it to ag. This has several advantages from an economic perspective. It will allow further development based on the saved potable use-the salvaged potable water can

now go to new housing, thus enhancing tax revenue for cities in the area. Additionally, it can be sold or traded on the market to, say, Las Vegas, at very high prices.

As the drought increases, there will be more pressure (economic and political) to use recycled water on ag. This makes, to the untrained (the average politician), good sense. But as it now stands, this water is a risk to public health, and to clean it up according to the standards necessary to protect public health will make this water very expensive.

In many cases, that clean-up cost is associated with the mix of materials that reach the sewer plant. As it now stands, industrial waste is discharged to sewers, which causes the liability that would accrue to such toxic materials if put into a toxic waste dump to just disappear. This is a major liability, if you track the costs that fall back on industry, which are associated with, for example, failed toxic waste dumps like Casmalia. Thus, if something can be sewerred, this liability falls to the wayside. There is a great deal of political capital associated with continuing this free ride and with keeping the information out of the public arena.

As the levels of drug-resistant bacteria expand, more will wind up in the sewer, and along with this the drugs needed to combat them. It is a revolving door that will empty onto the crops that we all consume. That will drive up the need for irradiating food, but that is a double-edged sword. As it becomes easier to nuke foods, the industry will then drop its sanitation levels to save money and the quality of the water used for raising crops consequently will fall.

The drought and consequent economics will push the system toward this eventuality. In many cases, the regulatory agencies that are supposed to be looking out for the citizens are clientele captured by the very industries that they were established to regulate. I see this on a daily basis; protecting the public's health falls into a diminishingly unimportant position when compared to industry profits, bureaucratic needs, and bureaucratic comfort. - *Edo McGowan, Ph.D., former medical geo-hydrology consultant for the U.S. Department of State and other agencies.*

Recycled Water Is a Critical Resource

Water purveyors in California constantly are searching for new sources of water-to slake the thirst, wash the bodies and cars, carry the wastes, fill the pools, and irrigate the gardens and crops of the seemingly unstoppable hordes that represent the overpopulation and overdevelopment we live with. Many of these water purveyors clearly recognize that the cheapest, most easily available source of "new" water is not new at all-it is reuse of the water we are now throwing away as wastewater.

Such use of "recycled water" is an emotionally charged issue, due to the "yuck factor" reaction of many uninformed people and due to the very real possibility that wastewater may contain pathogens that have not been properly identified or sufficiently treated. The "yuck factor" reaction has been expressed by the slogan "No Toilet to Tap," which has been used to successfully block recycled water projects whose design was technically sound. The pathogen issue is one that is technically solvable and must be addressed correctly, but which also applies to any water source, since both surface water and groundwater may be contaminated with pathogens.

In fact, with the very minor exception of water emitted by deep-sourced volcanoes like those in Hawai'i, there is no "new" water on the surface of the earth. It has all been recycled countless times in the hydrologic cycle of precipitation, runoff, and infiltration, discharge to oceans and lakes, and evaporation and transpiration.

In places that are not on a coast, wastewater is discharged to rivers and is reused by people living downstream with few exceptions and few problems. Such discharge occurs to the Sacramento River, which is the source of the State Water Project water that is exported from the

Delta, so "State Water" users, which may include the majority of the population, are in fact drinking and using "Toilet to Tap" water, albeit unknowingly. In some areas of California, recycled water has been used to recharge aquifers for many years, and in others it has been used for irrigation of both food and non-food crops-all without causing disease outbreaks.

The proper use of recycled water clearly requires technically adequate treatment and testing, but it is a resource that is too valuable to keep throwing away. Its use will certainly increase in the future, and the "yuck factor" reaction must be overcome through education. In the final analysis, this reaction makes no more sense than one of several statements attributed to W.C. Fields as to why he never drank water: "Fish [fornicate] in it." -

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<http://www.independent.com/news/2008/dec/18/recycled-sewage-contaminates-crops/?print>