

NATIONAL WATER RESEARCH INSTITUTE

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For more information, please contact:

Gina Vartanian, NWRI (714) 378-3278

Jeff Mosher, NWRI (714) 378-3278

www.nwri-usa.org

“DIRECT POTABLE REUSE” AS A SOURCE OF WATER SUPPLY

*White Paper Identifies Regulatory Issues that Need to Be Addressed
to Consider Use of Highly-Treated Recycled Water as a Drinking Water Supply*

FOUNTAIN VALLEY, Calif. –The National Water Research Institute (NWRI) recently published a White Paper that identifies 10 key issues that need to be addressed by regulatory agencies and water utilities in California interested in pursuing direct potable reuse – or, the introduction of highly-treated recycled water into a drinking water distribution system – as a viable option to satisfy the State’s future water demands.

The 32-page NWRI White Paper, entitled “Regulatory Aspects of Direct Potable Reuse in California,” was developed in response to a growing interest among water utilities, water-related associations, and environmental advocacy groups in California to assess the research needs, regulatory requirements, and other factors necessary to implement direct potable reuse.

California’s water supplies are becoming limited due to population increases, droughts, and reductions in imported water. To help conserve our water supplies, the State encourages the use of recycled water – municipal wastewater that has been extensively treated – for a range of applications, such as flushing toilets and urinals in office buildings, replenishing aquifers, and irrigating pastures, crops, golf course greens, school yards, parks, athletic fields, cemeteries, nurseries, and other vegetation.

Direct potable reuse would provide water utilities with the opportunity to augment their current drinking water supplies (such as surface water, groundwater, or imported water) with a local, abundant, and reliable source of water.

To date, no regulations or criteria have been developed or proposed for direct potable reuse in California or the United States.

The only example of a direct potable reuse project is in water-scarce Windhoek, Namibia, where highly treated recycled water is put into a drinking water system that serves 250,000 people. The direct potable reuse system in Windhoek has been in operation since 1968.

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As identified in the NWRI White Paper, the following key regulatory issues need to be resolved for direct potable reuse to be considered as a source of water supply:

- Clarify what constitutes direct potable reuse.
- Compensate for the loss of an environmental buffer (a natural water body, such as a lake or reservoir, that physically separates product water from a recycling water facility and the intake to a drinking water plant).
- Determine the number, type, and reliability of treatment processes necessary to serve as multiple barriers (which are incorporated into the design and operation of water recycling facilities to preclude the passage of microbial pathogens and harmful chemical constituents into the water system).
- Determine if dilution (or, the blending of recycled water with non-recycled waters, such as surface water or imported water) will be required as an added safety factor.
- Determine what monitoring requirements will be needed to assess the efficiency of the treatment process in removing microbial pathogens and chemical constituents.
- Clarify the type and level of public health risk assessment needed (which may include evaluating the risk of treatment system failure and potential health risks due to such a failure).
- Determine if scientific peer review of direct potable reuse projects by expert advisory panels will be a requirement.
- Evaluate how existing drinking water statutes, regulations, policies, and permitting processes may apply to direct potable reuse projects.
- Clarify the roles of regulatory agencies in providing oversight of direct potable reuse projects.
- Develop a communication system for the timely sharing of information between water utilities and regulatory agencies to avoid the distribution of unsafe water.

The NWRI White Paper was prepared by James Crook, Ph.D., P.E., an environmental engineer with more than 37 years of experience in state government and consulting, including directing the California Department of Public Health's water reuse program for 15 years.

The NWRI White Paper can be downloaded at www.nwri-usa.org.

The National Water Research Institute (NWRI) was founded in 1991 by a group of Southern California water agencies in partnership with the Joan Irvine Smith and Athalie R. Clarke Foundation to promote the protection, maintenance, and restoration of water supplies and to protect the freshwater and marine environments through the development of cooperative research work. NWRI's member agencies include Inland Empire Utilities Agency, Irvine Ranch Water District, Los Angeles Department of Water and Power, Orange County Sanitation District, Orange County Water District, and West Basin Municipal Water District.

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