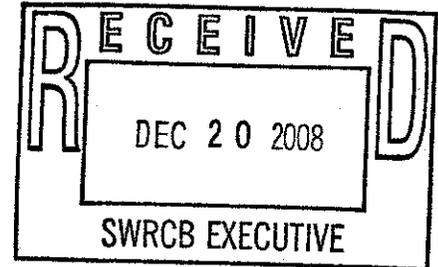


December 18, 2008

Jeanine Townsend  
Clerk to the Board, Executive Office  
State Water Resources Control Board  
P.O. Box 100  
Sacramento, CA 95812-0100



**Re: STATE WATER RESOURCES CONTROL  
BOARD, DRAFT RECYCLED WATER POLICY**

Following are comments of Public Employees for Environmental Responsibility (PEER) on the SWRCB, Draft Recycle Water Policy.

General Comments

This policy is too narrowly focused on salt/nutrient pollutants to the exclusion of myriad other pollutants to satisfy Resolution 68-16 or most State and Federal laws. Very little or no information is available on the risks to public health and the environment (i.e., other living things) of the majority of pollutants in waste water, combinations of those chemicals, or their breakdown and reaction products to support the claim that the proposed use of recycled water is beneficial. Little is known of the complex processes of transport and fate of most pollutants in treated wastewater. The geology and hydrology of basins in which the recycled water is to be used are quite complex and poorly known. The proposed policy, therefore, is likely to assure degradation of clean water supplies, as is exemplified by the treatment of emerging contaminants of concern.

There are too many unknowns to proceed with this policy. PEER recommends instead that reuse of wastewater be focused on cleaning it to much higher standards than presently invoked, and to prevention of entry of new pollutants into the waste stream until each is proven to be remediated by treatment systems.

The assertion in the Preamble that water "recycling, conservation, and stormwater are drought proof and reliable water sources that will allow local, regional water agencies to move toward clean, abundant, local water" is misleading and exaggerated. Reduction of water supply via drought is likely to reduce the amount available from recycling as well as stormwater runoff, and as well further impair surface water quality. That current science points to imminent increase in

droughts of greater intensity and duration in the southwestern North America<sup>1</sup> appears not to be sufficiently acknowledged by the proposed policy.

Declaring the Board's "independence from relying on the vagaries of annual precipitation" by increasing the State's dependence on use of recycled water and stormwater is not likely to impress nature, as is well-understood by other management bodies responsible for setting policy<sup>2</sup> and climate scientists.<sup>3</sup>

Such unsupportable claims are naïve and undermine any credibility this policy may seek.

Conservation, on the other hand, is a laudable goal, which is independent of the vagaries of climate and subject to our control. It should be elevated to a statewide policy all by itself.

### Specific Comments keyed to the proposal

#### **1 Preamble**

p. 2. The finding that recycled water is safe "when used in compliance with this policy, Title 22 and all applicable State and Federal water quality laws," perpetuates the well-known inadequacies of those laws (and of "this policy") to protect water quality. The problems reside in the focus of this policy on salt/nutrient pollutants to the exclusion of pathogens, endocrine disrupters, pharmaceuticals, and a wide range of industrial pollutants; the apparent lack of recognition in this policy of effects of mixed pollutants and breakdown products; the inadequate understanding by this policy of the complexity of processes of transfer of pollutants to surface and groundwater; and the very low level of understanding by this policy of drought, in particular in relation to climate change and rates of precipitation change.<sup>4</sup>

#### **3. Benefits of Recycled Water**

p. 3. The finding of presumed "beneficial impact" improperly ignores the unknown potential impact on public health and the environment of numerous pollutants that survive treatment to the limited standards cited in this policy.

#### **6. Salt/Nutrient Management Plans**

p. 5. The degree of specificity of salt/nutrient management plans required to assure avoidance of surface and groundwater contamination is dependent on site-specific features that are generally unknown or poorly characterized. No guidance is provided on standards to be adopted. The assumption that stormwater recharge, especially from urban, industrial, mined areas, highways, etc., is of a quality that would dilute salt/nutrient content or any other contaminants in waters normally recharging aquifers is unwarranted without baseline information and an intensive monitoring program.

p. 6, items (b) and (f). Permissive inclusion of pollutants other than salts and nutrients that adversely affect water quality is grossly inadequate, and no guidance is provided as to what other constituents might need attention.

p. 7 (continuation of item a). "...other constituents of concern" and "...the constituents identified in paragraph 6(b)(1)(f) above shall be monitored" are not identified or listed or even mentioned as being a very large number of potentially toxic items whose impacts on public health or the environment are poorly known. So what, actually, will a permit require to be monitored and what standards will be applied?

p. 7, items (i-iii). The monitoring program must be described in explicit detail, in particular, what it entails for constituents other than salts/nutrients, and what standards will be applied. How will constituents for which safe standards have not yet been determined be handled?

p. 7, item (b). What is to be monitored, and what standards will be applied to CECs?

p. 7, item (d). Assessing basin/sub-basin assimilative capacity, loading estimates, and fate and transport of salts and nutrients are very complex matters, and the database required is likely largely missing. The same information for all other contaminants also is needed.

p. 7, item (e). The difficulties of managing the load of all the myriad contaminants present in recycled water and storm runoff on a sustainable basis must be addressed.

## **7. Landscape Irrigation Projects**

p. 8, item (b)(1). The example cited is strange. Does this mean that recycled water irrigation above high transmissivity soils 5'6" over a high quality groundwater aquifer is eligible for streamline permitting? Qualifying a project on a simplistic notion of soil transmissivity is sure to lead to aquifer contamination. Transmission of fluids through soil depends on many soil properties, including structure, and is not easily determined. Making streamlining conditional on a paragraph that provides no more guidance than a single (flawed) example is grossly insufficient.

p. 8, item (b)(2). This implies that streamlining in the absence of "substantial evidence in the record" of unusual circumstances is OK. The first step is to define the system properties by real data. In the absence of actual site-specific measurements, there should be no streamlined permitting allowed.

p. 9, item (b)(4). The monitoring requirements are meaningless unless accompanied by standards of acceptable concentrations and actions required if standards are not met.

## **8. Recycled Water Groundwater Recharge Projects**

p. 10, items b(1), (2). Compliance with regulations as yet unadopted, and partial listing of conditions provides no standards or guidance. CEC monitoring of what? The recharged aquifer? The recycled water to be recharged? What standards will apply? What "effluent" is referred to here? Will potential reactions within an aquifer be monitored? How? What standards? This is so fuzzy as to be downright dangerous.

p. 10, item d. Extremely fuzzy wording, which again provides practically no guidance. Is the contaminant plume the recharge water? There are many potential reactions that could affect aquifer water quality between the recharge water and soil/rock materials on the way to the aquifer and within the aquifer. Citing a single example hardly suffices to characterize the potential problems.

## **9. Antidegradation**

p. 11, item c. A salt/nutrient management plan is insufficient to assure compliance with Resolution 68-16. Avoidance of pollution or nuisance requires standards for all pollutants and their breakdown and reaction products.

p. 11, item c (1). In general the assimilative capacity of basins and sub-basins is not known and can be demonstrated only by elaborate research. Therefore, the standards of <10% or <20% of assimilative capacity are meaningless. Calculation of assimilative capacity, where not known, by the project proponent, and from the wording of this entry, would constitute guesswork on salt/nutrient loading only, cannot satisfy Resolution 68-16.

p. 12, item d. Some requirements regarding landscape project impacts on groundwater, along with monitoring and standards should be included in the section on use of recycled water for landscape irrigation projects. Addressing these impacts in part through a salt/nutrient management plan leaves the biggest part (all other contaminants) unaddressed.

p. 12, item d (1) (2). Streamline approval of projects on the basis of salt/nutrient plans alone does not satisfy the requirements of Resolution 68-16

## **10. Emerging Constituents/Chemicals of Emerging Concern**

p. 12, item a. (1). Since, by definition, contaminants of emerging concern, are insufficiently characterized to assess risks of aquifer pollution under Resolution 68-16, a precautionary position is required. If such contaminants, as well as others not yet recognized, pose serious risks to public health, having them in the aquifer can hardly satisfy the basic tenants of this proposed policy—as well as existing state laws and policies.

p. 12, items a. (2) (3). But, if new knowledge indicates the standards in effect were not adequate, we already have a problem. Giving time to comply will not solve the problem of already having polluted the aquifer.

p. 12, item a. (4). This conclusion leaves unstated the obvious fact that we have no business permitting recycled water to be used in any way that threatens existing water supplies until the potential impacts of all contaminants in recycled water are fully assessed, along with their potential reaction products, and no new contaminants are permitted to enter the waste stream without prior full assessment.

p., 13, item b. All permitting for recycled water use should be held in abeyance until this research has been completed, and control over introduction of any new contaminants into the waste stream (pre-treatment) is strictly implemented.

A far better solution is to focus on development of protocols to clean used water of all synthetic contaminants and to prevent entry of new ones into the waste stream.

#### References

<sup>1</sup>A large majority of climate models project a more arid environment in the southwestern North America: R. Seager, et al. Model Projections Of An Imminent Transition To A More Arid Climate in Southwestern North America. 2007 *Science*. 316:1181-1184; G.M. MacDonald et al. Climate Warming and 21<sup>st</sup> Century Drought in Southwestern North America. 2008 *EOS, Transactions of the American Geophysical Union*. 89 (9): 82.

<sup>2</sup>*Climate Change Adaptation for Water Managers Workshop*, Oracle, Arizona February 5, 2008, Harvard University Knowledge Systems for Sustainable Development Project, Water Resources Research Center, University of Arizona, and the U.S. Bureau of Reclamation; Gregg Garfin, Katharine Jacobs, and James Buizer. Beyond Brainstorming: Exploring Climate Change Adaptation Strategies. 2008 *EOS, Transactions of the American Geophysical Union*. 89 (12):227.

<sup>3</sup>M.T. Anderson and L.H. Woosley, Jr. Water Availability for the Western United States: Key Scientific Challenges. 2005. *U.S. Geological Survey Circular* 1261.

<sup>4</sup>G. T. Narisma et al. Abrupt Changes in Rainfall During the Twentieth Century. 2007 *Geophysical Research Letters*. 34, L06710, doi:10.1029/2006GL028628.

Sincerely,

Howard Wilshire Ph.D. (Geologist)  
Chairman, Board of Directors  
Public Employees for Environmental Responsibility  
3727 Burnside Rd.  
Sebastopol, CA 95472