CITY OF ROSEVILLE CALIFORNIA

ENVIRONMENTAL UTILITIES
Water Utility
2005 Hilltop Circle
Roseville, California 95747-9704

December 16, 2008

Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, California 95814

Re: Comment Letter – Anti-degradation policy (Resolution 68-16)

Dear Ms. Townsend:

The City of Roseville (Roseville) appreciates the opportunity to submit the following comments on implementation of the State's anti-degradation policy, Resolution No. 68-16. Resolution number 68-16 should be implemented to encourage conjunctive use and groundwater storage projects like Roseville's aquifer storage and recovery (ASR) program. Conjunctive use and groundwater storage projects, such as Roseville's ASR project will play an integral role in increasing the State's ability to meet its increasing water demands in an environmentally friendly way.

Specifically, in order to promote increased groundwater storage, the Water Boards must interpret Resolution No. 68-16 so that compliance with it is evaluated considering all characteristics of ASR projects' source water and not on a constituent-by-constituent basis under which marginal increases of any constituent above natural background levels can be termed degradation. Roseville's experience with its ASR project indicates that not only can such projects increase the amount of water available in dry times by increasing the state's storage capacity, but also can improve the quality of existing groundwater aquifers by introducing cleaner surface water to them.

BACKGROUND

1. *Roseville and Its ASR Project*

Roseville serves water to over 100,000 residential and commercial customers in western Placer County within the Sacramento metropolitan area. Roseville historically has relied on surface water diverted from the American River watershed to serve its customers. In 2000, Roseville, along with many other Sacramento area water suppliers, environmental groups and business groups, signed the Water Forum Agreement. That Agreement establishes two co-equal goals for the region's use and management of the lower American River: (a) establishing a reliable water supply for

the region to meet its anticipated 2030 demands; and (b) enhancing the River's aquatic resources. In order to implement these goals, many water suppliers in the region, including Roseville, stated that they would seek to implement water-management measures that would allow them to reduce diversions from the lower American River in drier years.

One such measure that Roseville is implementing is an extensive ASR program. ASR involves using wells to both inject water directly into a groundwater aquifer and then later pump that water for consumptive use. In order to implement any direct groundwater storage program, Roseville is limited to ASR because the soils inside the City limits are not suitable for aquifer recharge using traditional percolation ponds for recharge.

The objective of Roseville's ASR program is to increase the level of water supply reliability for the community. ASR could also be used to reduce the impact of peak day demands on existing treatment and delivery facilities. A key result of program implementation is providing another tool for the region to use in developing a conjunctive use program identified under the Water Forum agreement.

The ASR program is environmentally friendly and cost-effective. ASR programs require a small wellhead sites (typically the size of a residential lot) and do not involve extensive ground disturbance. ASR projects therefore can be implemented in built-out urban areas, which could make such projects highly valuable for meeting growing water demands within existing metropolitan regions. Because ASR wells can be sited within urban areas, they also can be added to existing water systems at nearly any point downstream of the system's existing drinking-water-treatment facilities.

Accordingly, to be economical in an urban setting, ASR projects generally must use drinking water permitted by the Department of Public Health (DPH) as their source water. In its ASR program, Roseville has used, and intends to continue to use, DPH permitted drinking water from Folsom Lake diversions. This source water is significantly lower in total dissolved solids (TDS) than the local groundwater. It would be impossible for Roseville to implement its ASR program economically if Roseville were required to apply specialized treatment of or provide parallel distribution for the source water before it is injected, through ASR wells, into groundwater storage. Such specialized treatment essentially would involve overbuilding a significant portion of Roseville's existing drinking water treatment and delivery facilities and would cost tens of millions of dollars.

2. *Statewide Importance of ASR*

In the 2005 California Water Plan, the Department of Water Resources (DWR) included conjunctive use of groundwater and surface water, and groundwater storage, among the most important methods for increasing the State's water supply. That Plan identified those groundwater management methods as having the potential to increase the State's water supply. DWR recently released a document specifically addressing

the State's water supply needs relating to climate change entitled "Climate Change Adaptation Strategies for California's Water". Due to changing hydrology, Strategy 6 within the document states that California must expand groundwater storage by effectively using aquifers as water banks. The importance of conjunctive use and groundwater storage for the States' current and future water supply is now clearly recognized, and was unknown when the anti-degradation policy was originally written 40 years ago.

As discussed above, in many areas throughout the state traditional percolation ponds will not be effective. ASR wells therefore will be a very important component of the State's future water management portfolio, but will only be economically feasible if DPH permitted drinking water can be used as source water.

3. *Regional Board Permitting Issues with Roseville's ASR Project and Recommended Approach to Anti-Degradation Implementation*

In general, the permitting of Roseville's ASR program has been and continues to be a long and expensive process. The City first approached the Central Valley Regional Water Quality Control Board (Regional Board) in early 2003 to define the process for permitting an ASR program and to identify the requirements and timelines for obtaining permits. This was the first request of this type for the Board, so the City embarked on an epic journey of permit program development. Two different phases of testing and data gathering to address Regional Board staff questions on the benefits of this type of technology for the region were required. To date, Roseville is still working through the permitting process identified by Board staff in 2003.

Development, permitting for pilot testing (phases 1 and 2) and testing has taken over 5 years to get to a point where Roseville can now apply for a long-term operating permit. This effort has required a significant investment on the City's part – over $2 million above the capital investment in infrastructure. Many entities that could benefit from ASR cannot afford this high level investment.

To enable RWQCB staff to more appropriately deal with 21st Century issues relating to the balance of groundwater supply needs with groundwater protection, we recommend that the Water Boards must implement Resolution No. 68-16 in relation to ASR projects to:

- Consider the overall quality of their source water, rather than focusing on whether any constituent present in that source water exceeds background levels in the receiving groundwater aquifer;

- Rely on DPH's drinking-water standards to establish what levels of THM's are protective; and

- Recognize that the significant statewide benefit generated by ASR projects' recharging of aquifers represents the sort of benefit to the State that justifies any limited impact to groundwater quality that results from the injection of DPH-permitted drinking water.

More specifically, the City requests the Water Board consider the following concepts relating to the Anti-degradation policy.

COMMENTS

1. *Antidegradation Policy – Restricts Degradation of Water Quality*

As the Antidegradation Policy is currently written, the policy restricts staff and dischargers from reducing the water quality of groundwater even though such a reduction in water quality might still allow the protection of the beneficial uses associated with the water prior to the quality reduction.

Consideration/Comment

Although the concentration of certain constituents may be elevated relative to native groundwater, beneficial uses will not be impacted by the program. Based on ASR Program testing, dispersion, degradation, and dilution reduce the constituents of concern (i.e. disinfection byproducts {DBPs}) to levels far below Maximum Contaminant Levels (MCLs) within the zone of groundwater that is managed by the City.

2. *Antidegradation Policy – Maximum Benefit to the People of the State*

As the Antidegradation Policy is currently written, change is allowed only if the change is consistent with the maximum benefit to the people of the State, does not unreasonably affect present and anticipated beneficial uses, and does not result in water quality less than that prescribed in water quality control plans or polices.

Consideration/Comment

An ASR project's purpose is to recover the injected water for later delivery to the public. Given that the State Water Plan identifies the importance of conjunctive use to meeting the state's future water demands and that Roseville's ASR project is clearly beneficial to the City and the Lower American River, Roseville's and ASR projects in general therefore are "consistent with maximum benefit to the people of the State," in Resolution No. 68-16's words. For this reason, the City is asking that a guidance document be considered to allow for reasonable measures when applying resolution 68-16 for ASR projects.

3. *Antidegradation Policy – As it relates to Water Quality Objectives*

If the State determines that some water quality degradation is in the best interest of the people of California, some incremental increase in constituent concentrations above background levels may be permitted under the policy. However, this increase can only be permitted between natural background levels and the water quality objectives.

Consideration/Comment

Although it is recognized that the water quality objectives are not defined within resolution 68-16, when this resolution is applied within a basin with fairly restrictive water quality objectives such as the Central Valley, permitting of direct injection projects for groundwater storage on an operational scale is extremely challenging and remains unprecedented. For this reason, the City requests that a guidance document be developed that takes into account human health and risk based decisions when applying the Antidegradation resolution. For example, the DPH has made public statements at RWQCB meetings stating that they believe a Maximum Contaminant Level Goal (MCLG) of 70 micrograms per liter (ug/l) for Chloroform is protective of human health. Although no uniform statewide Water Quality Objectives have been identified for TTHMs and Chloroform, the Water Quality Objective within the Central Valley for Chloroform (one of the four TTHMs) is 1.1 ug/L, a highly restrictive value. The policy must balance the need to protect existing high quality water with the benefit to the State of providing opportunities for conjunctive use and groundwater storage.

In reviewing ASR projects' water quality effects as part of such an integrated analysis, the Water Boards should use DPH's maximum contaminant level (MCL) as the standard for determining whether the levels of THM's that are introduced into groundwater will have any adverse impacts. DPH has stated publicly at Regional Board meetings that DPH's MCL level of 80 micrograms per liter for total THM's is protective of human health. DPH is the state agency with statutory authority to define what levels of constituents are protective in drinking water. Because drinking water will be a necessary component of successful ASR programs, the Water Boards should acknowledge DPH's and federal EPA's expertise and consider reliance on the MCL or maximum contaminant level goals (MCLG) in analyzing the effects of ASR injections under Resolution No. 68-16. Such an approach would not only promote additional groundwater storage, but also would avoid any public confusion that could result from the Water Board implicitly declaring that DPH's drinking-water standards are not protective of public health.

4. *Antidegradation Policy – As it relates to the Report of Waste Discharge and Permitting Requirements*

The intent of the Antidegradation resolution is to regulate "disposal of wastes into waters of the State...to achieve the highest water quality consistent with maximum benefit to the people of the State..."

Consideration/Comment

ASR Program development and operation has previously been permitted through a Report of Waste Discharge (RWD) and issuance of a waiver. Although a RWD and issuance of an operations waiver is the mechanism for regulating the implementation and operation of an ASR program, the City still maintains that treated drinking water (to be injected) is not a waste, but a valuable resource that will later be extracted and served to customers. Furthermore, the message being sent to the community (i.e. your water is safe to drink, but not pure enough to temporarily store underground) are all of great concern, due to public perception considerations. The City suggests that a different permitting name and requirements be developed as part of an Antidegradation guidance document. To the extent that an integrated analysis of all of an ASR project's water-quality effects indicates that the project may degrade the quality of the receiving groundwater to some degree, it is asked that the Water Boards recognize such projects' significant public benefits in applying Resolution No. 68-16. The injection of drinking water into groundwater storage for later recovery and public use simply cannot be viewed as a waste similar to discharging treated wastewater or pumping contaminated water for cleanup and disposal.

5. *Antidegradation Policy – Best Practicable Treatment and Controls*

Section 2 of Resolution 68-16 requires the best practicable treatment or control of discharge to assure the high quality of waters.

Consideration/Comment

Application of DPH-mandated drinking water treatment represents, in Resolution No. 68-16's words, "the best practicable treatment or control" of the quality of ASR projects' source water and, to the extent that injection of such water impacts the quality of receiving groundwater, the Water Boards should recognize that the impacts are consistent with Resolution 68-16's terms. Although it is technically feasible to further treat the water at the wellhead before injection to remove disinfection byproducts (DBP)s, it is not cost effective, and would make ASR projects economically infeasible. The City has recently completed a wellhead treatment study that identifies treatment technologies and costs to remove trace levels of DBPs from the source water. An exorbitantly expensive investment would be required at each wellhead to ensure DBP removal prior to injection. These costs would be borne by the ratepayers with no commensurate benefit to health or water supply. Furthermore, space limitations at the wellhead and adverse visual impacts are of great concern to the City. Finally, additional wellhead treatment of surface water prior to injection sends a message to the community that their water is safe enough to drink but not pure enough to temporarily store underground. These conditions make it impracticable to further treat drinking water before injection and temporary storage in the subsurface.

Finally, the City has invested significant resources to develop this Program. The Program has included innovative planning, cutting edge technology and design, stakeholder cooperation, and unprecedented teamwork with regulatory agencies including the Department of Public Health (DPH) and the Central Valley Regional Water Quality Control Board (RWQCB). When the Program is fully implemented, the City will have taken a proactive approach toward water supply and water quality by increasing groundwater levels in the basin and in general, increased water supply reliability, benefiting all users. This approach will enable the supply to be put to beneficial use by future generations, as opposed to drawing down the aquifer creating water supply and water quality challenges that are prevalent throughout the Central Valley.

Thank you again for the opportunity to submit these comments. If you have any questions about this letter, then please do not hesitate to contact me at (916) 774-5770.

Sincerely yours,

Derrick Whitehead, P.E.
City of Roseville
Director of Environmental Utilities

Cc:

Mary Serra	Regional Water Quality Control Board, Central Valley
Pamela Creedon	Regional Water Quality Control Board, Central Valley
Dorothy Rice	State Water Resources Control Board
John Woodling	Sacramento Groundwater Authority
Dave Cox	State Senator, First District

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