



BIG BEAR AREA REGIONAL WASTEWATER AGENCY

Reflections on Big Bear's Water: Clear Facts

For most of us, there's nothing very complex about water. Chemically, it's a simple union of two fundamental elements. It's the basis of all life and most quality of life. We drink it, dive into it, paddle through it, glide over it. We rely on it, and take it for granted.

Here in Big Bear, simple assumptions about water don't tell the full story. Our majestic lake and mountain streams are not the source of the water we drink. Instead, our main supply of water is underfoot, in a local groundwater aquifer. When it rains or snows, the ground soaks up the water, and gravity pulls it deep into the aquifer. We retrieve it by pumping it to the surface through wells. The system works fine as long as it remains in balance – as long as we don't take out more water than is available.

Unfortunately, these vital liquid assets have been dwindling in the face of the unyielding law of supply and demand. We've used more than we have replaced, and demand keeps rising. With periodic droughts and variable precipitation amounts, supply is unsteady. As students of economics know, that means we must either make do with less – or create more.

Creating New Sources

For years, the Big Bear Area Regional Wastewater Agency (BBARWA) has produced recycled water at our wastewater treatment plant. Many residents may assume that this project has added to our supply; but the truth about our water is more complex. Most recycled water created in Big Bear is piped down to Lucerne Valley, where it irrigates alfalfa fields. A smaller amount is put to use in our community for dust control, construction uses, fire fighting and some landscape irrigation.

This past arrangement keeps Lucerne's cows happy, but it doesn't help supply any local water. BBARWA is planning to recapture this water. By dramatically increasing the amount of wastewater transformed into recycled water, we can reduce the use of our drinking water supplies for landscape irrigation, dust control, industrial processing, wetlands preservation and fire fighting. This replaces water that comes from our groundwater aquifer. Ultimately, there may be enough recycled water produced to take care of all our non-drinking water needs.



Recharging the Aquifer

Taking less from the groundwater basin is one part of the solution. BBARWA's parallel strategy is to ensure a healthy and sustainable level in the aquifer by adding purified recycled water to it. The purified water would be poured onto surface spreading ponds, where it would naturally filter back into the ground.

This groundwater replenishment program, currently in the pilot testing phase, begins by taking recycled water that has already been treated and puts it through an additional three-step process of microfiltration, reverse osmosis and ultraviolet disinfection. At that point, nature's time-tested filtration system takes over and the purified water slowly percolates back into the ground. Eventually it will settle in the aquifer and blend with existing groundwater. Similar water replenishment systems are already in use in communities around the nation, including El Paso, Texas, Northern Virginia and Orange County, California.

As a first step, BBARWA is currently testing the hydrology, or rate of percolation, of two sites (using potable or drinking water). If the results are positive, the next step will be preparation of an Environmental Impact Report. A project schedule is included in this newsletter.

The aquifer is a water resource bank for Big Bear. By replenishing it, we drought proof our supplies, prevent catastrophic overdrafts and steadily build our resources. As in financial management, proper stewardship of our water supply requires prudence, discipline and a clear vision of future needs.

Message From the General Manager – Steve Schindler

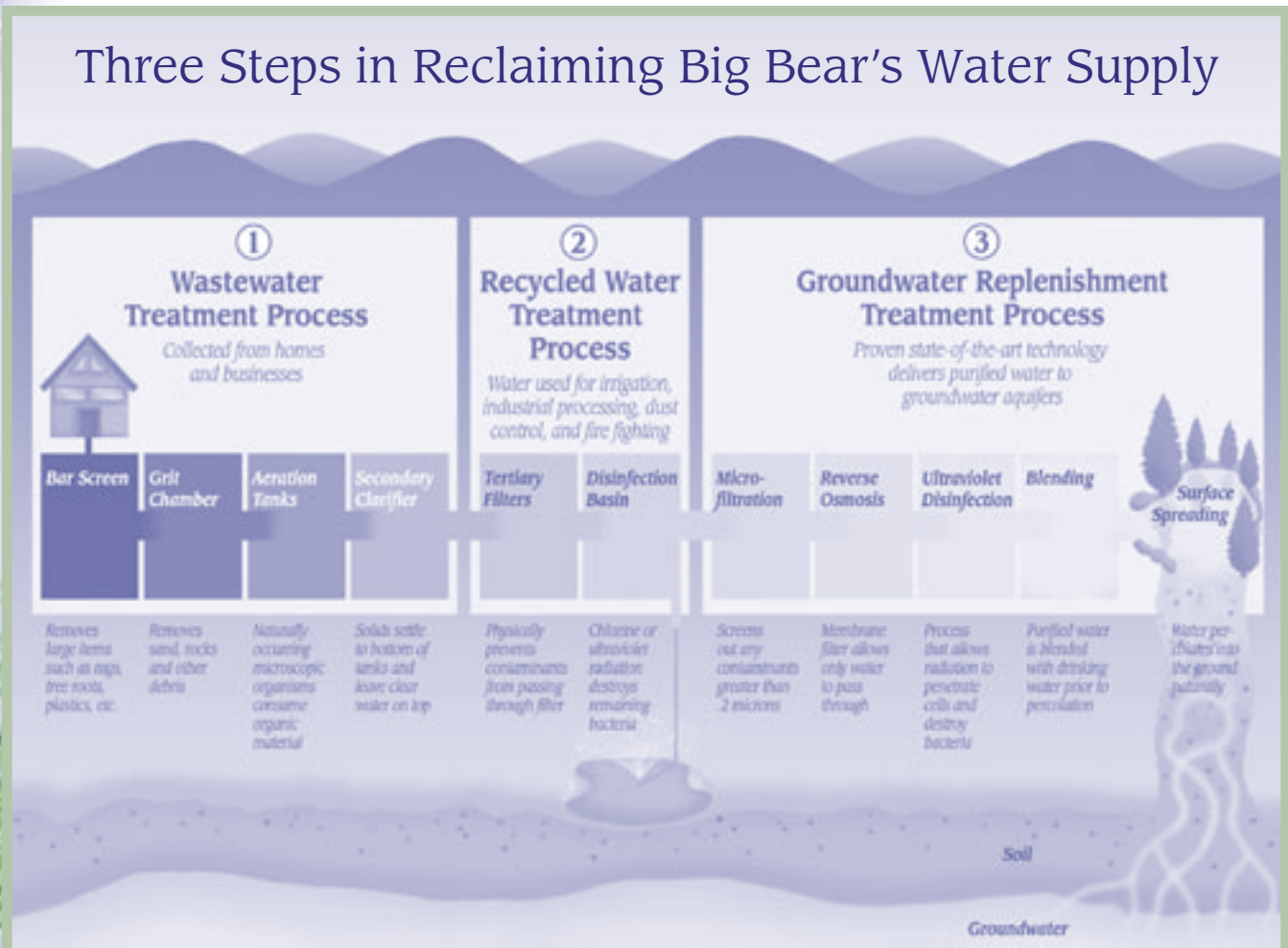
Public health and safety and cost-effectiveness will continue to be absolute priorities for both the recycled water program and the groundwater replenishment project as we continue our studies. Both are strictly regulated and monitored to protect the public.

In addition to our technical studies, BBARWA is initiating a community-wide public outreach program. It is essential to the Governing Board that residents and the business community understand and support our efforts. In the coming months, you'll hear and see more about our recycled water projects in the newspaper, newsletters, magazines, on our web site and at community workshops and meetings. Please call or e-mail me personally to let me know your ideas, questions and concerns. My e-mail address is: gm@bbarwa.org, and our phone number is 584-4018.



Steve C. Schindler

Three Steps in Reclaiming Big Bear's Water Supply



Recycled Water: Questions and Answers

What is recycled water?

Recycled water starts out as wastewater, which is then treated so it is suitable for landscape irrigation and other non-drinking purposes. Recycled water is processed through biological treatment and a filtration and disinfection system before being provided to landscape and industrial customers.

Is recycled water safe?

In over 75 years of use in California, there has never been a case of anyone becoming ill from contact with recycled water. Because recycled water originates from wastewater, its use is strictly regulated and monitored by the Department of Health Services and other regulatory agencies. Recycled water receives a disinfection process that destroys any harmful bacteria before it is used for irrigation or other purposes. Recycled water is treated to a level that is safe to swim in but is not recommended for drinking.

What are the benefits of using recycled water?

Using recycled water for non-drinking water purposes such as landscape irrigation, will help reduce the amount of groundwater we use. Recycling water is the same concept as recycling paper, bottles or cans. This valuable resource can be used again rather than being disposed.

Are other communities using recycled water?

Recycled water has a long history of use throughout the state of California and the United States. The City of Irvine has been using recycled water to irrigate golf courses, school grounds, parks, medians and other areas for the past 35 years. Other communities that use recycled water include Los Angeles, Moreno Valley, Lake Elsinore, Santa Margarita, Moulton Niguel and Fountain Valley. States

that have recycled water programs include Florida, Georgia, Texas, Hawaii and Arizona.

How would a groundwater replenishment system work?

After having gone through the purification processes at the BBARWA treatment plant, the highly treated recycled water is clear and similar to drinking water. If the project moves forward, it undergoes an additional high-tech, three-step process of microfiltration, reverse osmosis and ultraviolet disinfection. After these additional treatment processes, the purified water can be poured onto surface spreading ponds where it blends with rain or snow and can filter naturally into the aquifer through the soil, just as rainwater does.

Which communities use groundwater recharge?

Currently the Orange County Sanitation District and the Orange County Water District are preparing to construct facilities that will treat up to 140,000 acre feet (enough for 200,000 families) using the same treatment processes proposed by BBARWA. County Sanitation Districts of Los Angeles, the Water Replenishment District and Scottsdale, Arizona have been using groundwater recharge for many years to augment their water supplies.

Is this technology safe?

The treatment processes that are proposed by BBARWA are proven technologies that have been used in other industries as well as water treatment. Reverse osmosis membrane filters are used to purify bottled water. Reverse osmosis filters out salts, viruses, pharmaceuticals and pesticides, as well as bacteria. Microfiltration has been used in commercial industries to process food and fruit juices, as well as sterilize medicines that cannot be heated. Ultraviolet disinfection acts



as concentrated sunlight to provide an additional barrier of protection against unwanted contaminants. All groundwater recharge projects are strictly monitored and regulated by the Department of Health Services to ensure that the water is safe.

How much will these recycled water programs cost?

BBARWA is investigating the feasibility of spending between \$25-\$47 million to build pipelines and infrastructure that would increase the amount of recycled water available for use and to design and build the groundwater recharge system. The agency is pursuing federal and state loans and grants to help fund these projects.



Pilot Spreading Basin



Big Bear Area Regional
Wastewater Agency
P.O. Box 517
Big Bear City, CA 92314
(909) 584-4018
(909) 585-4340 (fax)
www.bbarwa.org

GROUNDWATER RECHARGE AND WATER RECYCLING PROJECT

2004	2005	2006	2007
J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
Community Outreach • March 2004–June 2005			
Pilot Testing of Groundwater Sites • February 2004–May 2004			
Environmental Impact Report • May 2004–December 2004			
Regulatory Compliance and Permitting • July 2004–June 2005			
Governing Board Project Approval • January 2005			
Additional Engineering Studies • July 2004–December 2004			
Design, Bid and Construction • March 2005–December 2006			
			Recharge Begins • July 2007 (estimated)
Recycled Water Permitting • January 2004–June 2005			
			Recycled Water Delivery • July 2007 (estimated)

I want more information about BBARWA's water recycling programs.

- Please add me to your mailing list and keep me informed about meetings and workshops.
- Please answer the following questions: _____

- I support BBARWA's water replenishment efforts. Please add my name to your list of supporters.

Please fill out the information below and fax, e-mail or mail it to the Big Bear Area Regional Wastewater Agency:

Name _____

Organization _____

Address _____

City _____

State _____ ZIP _____

Phone _____ Fax _____

E-mail _____



Big Bear Area Regional
Wastewater Agency
P.O. Box 517
Big Bear City, CA 92314
(909) 584-4018
(909) 585-4340 (fax)
www.bbarwa.org
e-mail: gm@bbarwa.org