Pharmaceutical Concentrations Measured in Recycled Water

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Locations of the West Basin Municipal Water District treatment plant and seawater barrier wells.

Reverse osmosis unit at the West Basin Municipal Water District.

Microfiltration unit at the West Basin Municipal Water District.

West Basin Municipal Water District (West Basin) currently injects 7.5 million gallons per day (mgd) of recycled water into an underground seawater barrier along the southern coast of Los Angeles County, California, which protects the groundwater aquifer from saltwater intrusion. The injected water first undergoes microfiltration or lime clarification as pretreatment and then passes through reverse osmosis (RO) at the West Basin Water Recycling Facility in El Segundo, California. An additional 10 mgd of imported surface water is combined with the 7.5 mgd of recycled water.

West Basin has initiated plans to increase the percentage of advance treated recycled water injected into the barrier. An expert panel was convened to review the project and ensure that it protected public health. The panel made several recommendations on the project, one of which was to monitor pharmaceuticals of concern in the barrier water RO effluent. West Basin subsequently collected two pharmaceutical samples; results showed the presence of select pharmaceuticals generally in the nanogram per liter concentration (one nanogram is equivalent to about one drop in 13 million gallons) in the influent wastewater to the West Basin Water Recycling Facility, but complete removal in the RO effluent. The table below shows the analytical results.

West Basin has received conceptual approval from the California Department of Health Services (DHS) to increase the percentage of recycled water injected into the barrier. DHS recommended a stepwise increase from 7.5 mgd to 12.5 mgd, and then from 12.5 mgd to 17.5 mgd. The water quality of each increase will be extensively monitored. West Basin currently is working with DHS and the Regional Water Quality Control Board to obtain a new discharge permit, and expects the first increase phase will be completed in 2005.

For additional information, contact Richard Nagel at West Basin at 310-660-6210.

Pharmaceuticals in RO Effluent from West Basin Water Recycling Facility

				February 2001		August 2001	
Pharmaceutical	**Category**	**Detection Limit**	**Units**	**Influent**	**RO Effluent**	**Influent**	**RO Effluent**
Ibuprofen	Anti-Inflammatory	10	ng/L	80	ND	91	ND
Naproxen	Anti-Inflammatory	10	ng/L	80	ND	250	ND
Diclofenac	Anti-Inflammatory	10	ng/L	50	ND	59	ND
Ketoprofen	Anti-Inflammatory	10	ng/L	45	ND	55	ND
Indometacine	Anti-Inflammatory	10	ng/L	--	--	ND	ND
Gemfibrozil	Cholesterol	10	ng/L	1,000	ND	1,300	ND
Ciprofloxacin	Antibiotic	10	ng/L	--	--	220	ND
Sulfamethoxazole	Antibiotic	10	ng/L	--	--	180	ND
Sulfumethazine	Antibiotic	10	ng/L	--	--	ND	ND

-- Not Analyzed ND - Not Detected