

## **CONTROL PROGRAM FOR COPPER-BASED ROOT ERADICATORS**

Copper, a highly toxic metal, is present in significant amounts near the Regional Water Quality Control Plant's (RWQCP's) outfall in San Francisco Bay. Copper is especially poisonous in very small amounts to aquatic plants and animals such as shellfish in early life stages. These animals, including clams and mussels, are important members of the food web in the Bay. While the RWQCP removes about 90 percent of the copper that enters the plant through the sewer system, the remaining portion that reaches the Bay significantly exceeds regulatory standards. The plant can only meet its discharge limits if industry, commercial establishments, and residents reduce the amount of copper they release into the sewer.

Studies by a variety of agencies suggest that copper sulfate-based root control agents, which homeowners and business operators put down their toilets to kill tree roots that invade soil pipes and cause plumbing backups, have been found to contribute 5 to 12 percent of the total amount of copper received by wastewater treatment plants.

Copper sulfate root killers are generally sold in "crystal" form. The pebble-size particles are intended to cling to roots in the pipes and kill them over time, by contact. Manufacturers typically recommend a dose of two pounds twice a year, or routine "maintenance" treatment of a half pound per month. Two pounds of root killer contain 0.5 pound of pure elemental copper enough to contaminate 20 million gallons of water above the limit set by regulatory agencies. Consultants estimated that in 1990 more than 400 pounds of these chemicals were sold in the RWQCP service area cities.

In 1992 the RWQCP proposed a Sewer Use Ordinance amendment banning the use of copper-based root control chemicals.

**Copper-based root control chemicals. No person shall discharge, dispose of or add to the sanitary sewer system or to the storm sewer any substance containing greater than five percent copper by weight, to control roots or for any other purpose.**

Since banning *use* rather than *sale* of these products made enforcement of the ordinance difficult from the start, education was determined to be the most effective tool for achieving widespread compliance. Following adoption of the ordinance amendment by all of the service area communities, the plant initiated a campaign to educate the public about the ordinance and the reasons why other root removal techniques are preferable. The program was first implemented in 1993; program efforts were renewed in 1995.

Plant staff enlisted plumbers and hardware stores throughout the service area in this effort. In 1993, sixteen of eighteen "service" plumbers, contacted by telephone and in person by the RWQCP's

consultant, agreed to mail an informational brochure with their bills for three months (during the spring growing season), and to stock brochures on their trucks for direct distribution to customers. That same year, eight of nine hardware stores also agreed to educate their employees and to distribute the brochure and other source control materials to their customers; in addition, the hardware stores volunteered to remove the products from their inventories. In return, the RWQCP conferred Clean Bay Business status on these businesses, purchased display ad space in area newspapers telling the public that these are the “good guys,” and provided literature holders to the hardware stores. In 1995, the RWQCP will repeat the contacts and Clean Bay Business recognition to ensure the continued cooperation of the local business community with our efforts.

Although plant staff are gratified by the positive response from service area businesses, it was clear from the beginning that implementing the Clean Bay Business Program in the local area could not possibly reach the entire local market for copper-based root control agents. Many “local” plumbers are in fact based outside the five communities served by the plant, while the largest hardware stores in the area are in Sunnyvale to the south and Redwood City to the north of the plant’s service area. Therefore, in 1994, RWQCP staff helped to develop a regional public education program sponsored by the Bay Area Pollution Prevention Group under the auspices of the Regional Water Quality Control Board. A supply of informational brochures about copper-based root control chemicals and distribution guidelines based on the RWQCP’s experience were provided to all Bay Area publicly-owned treatment works that wished to participate.

During 1994, RWQCP staff developed and co-sponsored a bill, which was taken to the California State Assembly. The legislative effort resulted in a commitment by the California Department of Pesticide Regulation to develop regulations relating to copper-based root killer. After a more than year of technical studies and public meetings, on December 11, 1995 the Department of Pesticide Regulation adopted emergency regulations prohibiting the sale and use of copper-based root control products in the nine San Francisco Bay Area counties (these regulations became permanent in 1996). Upon adoption of the emergency regulations, the RWQCP conducted an extensive outreach campaign in coordination with other agencies to notify the public, plumbers, and hardware stores of the regional prohibition.

During 1996, the RWQCP coordinated with the County Agricultural Commissioner to ensure enforcement of the regional sales prohibition. The RWQCP continued distribution of the regional educational brochure about copper-based root control products at public events and to the public via plumbers and hardware stores that request brochures. A utility bill insert announced the sales ban to local residents. Now that the regional sales prohibition is fully implemented, the need for education about copper-based root control products is reduced.

Data from residential wastewater trunkline sampling show nearly a 25% reduction in copper levels in 1996 and 1997 as compared to 1995. While other activities may have contributed to this reduction, the primary cause is probably the sales ban on copper-based root-control products. Given prior efforts to eliminate the use of this product in the RWQCP service area, the magnitude of this reduction is somewhat surprising; however, it highlights the impact of the large regional stores outside the RWQCP service area on local pesticide use.