COPPER DUMPING INCIDENT AFFECTS RWQCP DISCHARGE FOR MORE THAN A MONTH

On January 29, 1995 (Superbowl Sunday), the Regional Water Quality Control Plant (RWQCP) experienced the highest 24-hour average influent copper concentration in recent history(415 parts per billion (ppb), five times normal levels. This copper "slug" load contained about 60 to 70 pounds of copper. (On a typical day, the RWQCP receives 10 to 15 pounds of copper.) To follow up on this apparent dumping incident, RWQCP staff surveyed industrial dischargers and conducted site visits; however, the source of the copper was not found.

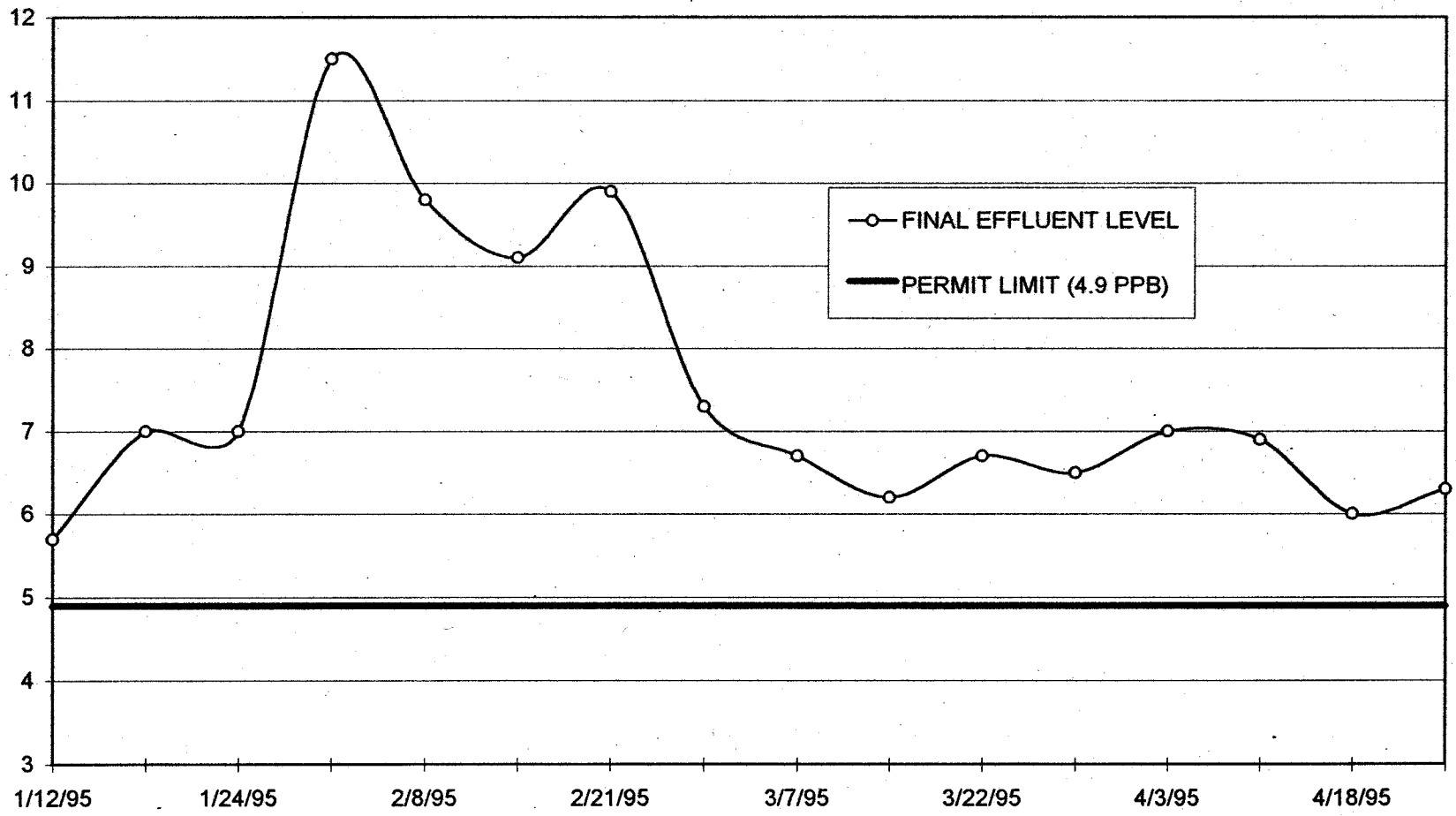
While the plant's copper influent concentration went up by a factor of 5 on January 29th, the good news is that the effluent only went up by a factor of 2 to approximately 12 ppb. On the day of the dumping incident, the RWQCP treatment processes captured a higher percentage of copper than usual. This high capture rate was possible in part because the copper influent had been at historically low levels prior to the incident.

The bad news is that not all of the copper captured was permanently removed by RWQCP processes. Much of the copper received by the plant is taken up by bacteria and other biomass involved in treatment of wastewater in the plant's aeration basins. This uptake causes the overall concentration of copper in the aeration basin biomass to increase, which in turn increases the RWQCP's effluent copper levels. Until copper levels in the aeration basins return to normal, the plant's discharge of copper to the Bay is elevated.

Each day, growth of the biomass due to nutrients (energy content) in wastewater requires the plant to remove some of the biomass from the process, removing the copper along with the biomass. Gradually, this removal process decreased the copper level in the aeration basins after the dumping incident, taking about a month to return to the concentration levels close to those seen prior to the incident. After about a month, the plant effluent copper level also returned to a level close to pre-incident levels of about 6 to 7 ppb (see the figure on the reverse).

This incident demonstrates that pollutant dumping can cause elevated discharge levels to San Francisco Bay for quite some time. Cooperation by all dischargers to the RWQCP is needed to ensure that this does not happen again.

PALO ALTO RWQCP
FINAL EFFLUENT
TOTAL COPPER CONCENTRATIONS (ppb)



January 12 through April 23, 1995