Case Studies – Water Quality

Improving Drinking Water Treatment

The CALFED Water Quality Program works toward continuous improvement of Delta water quality for all uses and to advance efforts to provide safe, reliable and affordable drinking water to millions of Californians. CALFED's strategy for cost-effective improvement of drinking water quality at the tap includes source water quality improvement, better water management and advances in treatment technology. This case study describes two CALFED grant funded projects that investigated the potential for combinations of advanced drinking water treatment technology to more effectively reduce contaminant concentrations in tap water.

Integrating Ultraviolet Light to Achieve Multiple Treatment Objectives

Metropolitan Water District of Southern California (MWD)

MWD evaluated the ability of ultraviolet (UV) light treatment, when integrated with other oxidants, such as chlorine, ozone, and chlorine dioxide, to protect public health. It investigated integration of UV light technology with primary disinfectants and conventional treatment process to provide high quality drinking water from the State Water Project. This study found that UV light can effectively be integrated into a conventional treatment process, reducing the amount of primary disinfectant needed. The combination of UV light and other disinfectants can reduce formation of disinfection byproducts, while achieving the required pathogen inactivation. UV light is particularly effective in killing *cryptosporidium*, a common pathogen that causes gastrointestinal illness.

UV Light and Multiple Disinfectants

Contra Costa Water District

This project addressed a long-standing problem for drinking water utilities that use brackish source waters, such as those found in the Bay-Delta. The temporal and seasonal variations in water quality, especially for bromide and organic carbon, make treatment to comply with U.S. Environmental Protection Act drinking water standards very difficult. As utilities strive to comply with increasingly stringent regulations, they must find ways to modify and extend the performance of their existing treatment facilities. This has been a particular issue in CALFED Bay-Delta drinking water discussions, but is also a concern in the Chesapeake Bay, Tampa Bay and other areas in the nation where water sources have seawater influence. The project identified inter-linked treatment approaches that can successfully treat these waters to meet drinking water standards and protect public health, but showed that there are limits to what these treatment technologies can do.