



# WATER CONSERVATION BY LIFE SCIENCES



THE LIFE SCIENCE INDUSTRY IS A LEADER IN WATER CONSERVATION THROUGH BUILDING DESIGN, THE USE OF RECYCLED WATER, AND SUPPORT FOR SUPPLY DIVERSIFICATION.



**A DECADE AGO, THE SANFORD BURNHAM PREBYS MEDICAL DISCOVERY INSTITUTE INSTALLED DOZENS OF WATER METERS ACROSS ITS CAMPUS. INCREASED AWARENESS OF HOW THE FACILITY WAS USING WATER RESULTED IN A DRAMATIC DECREASE OF WATER USE FROM 32 MILLION GALLONS IN 2005 TO 6 MILLION IN 2010.**

Biocom was founded 20 years ago to educate local officials about water needs of the life science industry. Our members depend on a reliable, constant source of water for everyday business. Interrupting these supplies could mean millions of dollars lost in delicate research. Adequate access to water is also a major factor for companies as they consider whether to locate research and manufacturing facilities in this region. If the trend of global companies choosing to locate in San Diego is to continue, we must persist in promoting water independence and access to reliable sources of water at competitive rates.

Biocom has supported a number of practical ways to diversify the region's water supply, such as indirect potable reuse and desalination, and has worked closely with local and state water officials to ensure consideration for the industry in new and existing regulations. Rising imported water costs, population growth, and repeated drought cycles present an ongoing challenge to San Diego's water reliability.



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**IN 2012, THERMO FISHER SCIENTIFIC INSTALLED A REVERSE OSMOSIS SYSTEM TO REUSE WATER FOR ITS COOLING TOWERS, AND A PURE STEAM GENERATOR REUSE SYSTEM FOR ITS BOILER FEED, RESULTING IN A CUMULATIVE SAVINGS OF ALMOST 2 MILLION GALLONS OF WATER PER YEAR. THAT'S A SAVINGS EQUAL TO THE AMOUNT OF WATER THAT THE CITY OF SOLANA BEACH USES EACH YEAR.**

## HOW WE USE WATER

The life sciences include biotechnology, pharmaceutical, medical device, diagnostics, industrial biotechnology, and research facilities. It is estimated that 80 percent of water used in a life science company is for process support. Process water has been defined as, "Water used in a manufacturing or treatment process, in actual production, in cooling towers, or research and development. This includes water specifically treated to produce the elevated quality of water needed for the process." In addition, life science facilities use water for the same uses as other businesses: HVAC systems, irrigation, and building maintenance.

The scientific process requires a high level of control with very small variance. Water use in research and development labs and process areas varies widely because of the nature of basic research; experiments run 24 hours per day, year round. Some lab operations are more water intensive than others, so water use varies depending on the type of experiment being performed.

## THE SCIENTIFIC PROCESS REQUIRES A HIGH LEVEL OF CONTROL WITH VERY SMALL VARIANCE.

Examples of water use specific to life science facilities include:

### Safety

- Safety shower testing and use
- Fire sprinkler testing and use
- Eye wash stations

### Compliance with regulatory agencies

- FDA
- USDA
- State and local regulatory agencies

### Cleaning and sterilization

- Equipment washing and sterilization
- Glass/cage washing
- Boilers for steam sterilization processes

### Chemical and experimental processes

- Chemical reaction cooling water
- Condensers for distillations
- Vacuum pumps
- Specialized water system for materials to be used in human trials
- Other certified equipment and processes for pre-clinical testing and clinical trial material development

## CALIFORNIA'S CONTINUING DROUGHT

As a result of increasingly severe drought conditions, Governor Brown has ordered state urban water use to decrease by 25 percent. The agencies who supply Southern California's water have expressed confidence that the 25 percent reduction target can be achieved by limiting outdoor irrigation and cutting back on discretionary indoor water use. However, if targets cannot be reached through outdoor restrictions alone, we anticipate regulators will consider shutoff periods. We believe legislators and water regulators understand the importance of the life science industry to the state, and we will continue to work closely with all stakeholders to ensure a steady water supply for Southern California's life science industry.

