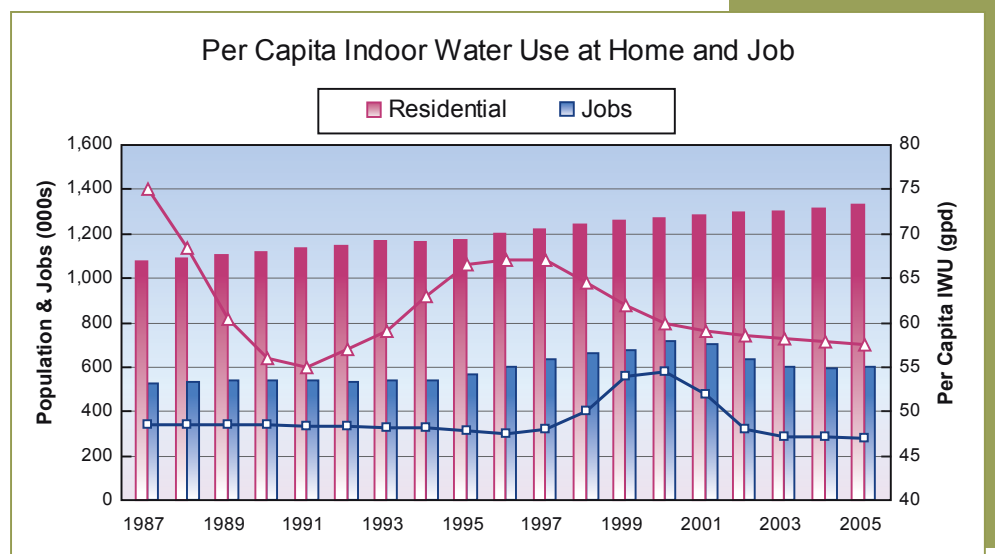


# TRIBUTARY TRIBUNE

## Water Use Vigilance

During periods of drought, the residential sector influences trends for indoor water use and flow volume to the San Jose/Santa Clara Water Pollution Control Plant. When normal rainfall and water supply return, these trends are driven by the commercial/industrial sector and the corresponding number and type of jobs. The better business gets, the greater the need for vigilance in implementing water conservation and wastewater pretreatment programs, to reduce water and sewage treatment costs. (See related story, page 3.)



Drought or no drought, conserving water remains a priority. The last twenty years have given us a unique opportunity to observe trends in our water use, both in our homes and at work. Initially it was Mother Nature who drove our decisions by serving up less snow pack in the Sierras and precipitation in our watersheds. The drought of the late eighties-early nineties emptied our reservoirs, and put the need to use water wisely on our evening news and newspaper front pages – and we responded. Subsequently, vegetable gardens were relinquished, brown lawns became sexy, and water conserving devices went into our showers and faucets. Our children, emboldened by previous successes at getting us to sort our trash so it could be recycled, reminded us not to leave the water running when we brushed our teeth because water is our most precious resource.

Residents in the San Jose/Santa Clara Water Pollution Control Plant (Treatment Plant) service area reduced the amount of water used at home by 27% – from 187 million gallons per day (mgd) in 1987 down to 137 mgd in 1991. That's 56,000 acre-feet of water – more than enough H<sub>2</sub>O for all of the homes in Campbell, Cupertino, Los Gatos, Santa Clara and Saratoga for a year! While two-thirds of these savings were from cutting back on outdoor water use, a full one-third was from less indoor water use, which translates directly to less water entering the Treatment Plant. The average resident lowered their average daily indoor usage by 20 gallons per day (gpd), which is significant when it's done by 1,128,000 people. See "Per Capita Indoor Water Use at Home and Job" above.

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The **Tributary Tribune** serves the cities of San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District (including Campbell, Los Gatos, Monte Sereno, Saratoga), County Sanitation Districts 2-3, Sunol & Burbank Sanitary Districts

# Solvents and Explosions in the Collection System

Most Industrial Users understand the importance of keeping flammable liquids and explosive vapors out of the sanitary and storm sewers. Although large-scale explosions or fires in sewers are rare, reports of manhole lids popping due to explosions in the sewer are not unknown – including in this service area! The results of such incidents can be costly: lost production time, damage to manufacturing facilities and equipment, injury or death, and even serious fines and penalties – not the sort of thing with which you'd want your company's name associated. Potential fire and/or explosion hazards exist for several commonly used industrial solvents and other chemicals:

- *Napthalene, paraffins, and polyaromatic hydrocarbons (PAHs)*
- *Benzene, toluene, and xylenes*
- *Methylene chloride, trichloroethane, and other chlorinated solvents*
- *Acetone, ethers, hexane, methyl ethyl ketone, and isopropyl alcohol*
- *Kerosene, gasoline, and many oils*

Control of solvents and other flammable and volatile liquids is important for preventing fires and explosions. The probability that a solvent will volatilize and pose an explosion risk depends on factors such as temperature, other chemicals

potentially in the sewer, and structures and equipment affecting water and air flow rates. That's why there are laws at the local, state and Federal levels to specifically prohibit disposing of many volatile compounds to the sewer. Be sure to train your employees and contractors accordingly. At a minimum, your site training should emphasize that flammable and volatile liquids should never be put down the drain, and a person shouldn't assume that the volume is too small to be dangerous.

## New! pH Fact Sheet now available!

Designed as a corollary to the pH Reporting Requirements poster, the pH fact sheet discusses the whys and whats of pH monitoring, and provides tips for preventing pH violations.

If you would like a copy of the pH Reporting Requirements poster and the pH fact sheet, and have not received one yet, call your Inspector at 945-3000.



## Solvent Impacts on the Plant and the Bay

Control and treatment of toxic organic solvents and liquids at commercial and industrial facilities not only protects your workers and your facility, but also safeguards the health of the San Jose/Santa Clara Water Pollution Control Plant (Treatment Plant) and the Bay. Many of the processes at the Treatment Plant use bacteria to manage the more than 100-million gallons of sewage (or wastewater) taken in each day. The bacteria process the biologically available matter and chemicals (their "food") in the sewage as part of treating the water before it is suitable for discharge to the Bay.

Bacteria used in industrial or municipal treatment facilities must often be "acclimated" to the food sources they will encounter in wastewater. Acclimation involves gradually exposing the bacteria to the wastes they will be treating. A sudden release of any substance to which the bacteria is not acclimated can cause the treatment process to fail.

Another potential problem for biological treatment processes is the introduction of materials that are toxic to the bacteria. In addition to treating domestic sewage, the bacteria at the Treatment Plant can process some solvents such as acetone, hexane, ketones, alcohols, toluene and xylenes in limited amounts. However, a release of toxic organics like chlorinated solvents is poisonous for bacteria, and in high enough concentrations can significantly upset the Treatment Plant's bacteria based processes.

In either of the cases above, lack of acclimation, or exposure to toxic solvent compounds, releases of solvents from a facility to the Treatment Plant can affect the bacteria and the treatment process, and cause the Treatment Plant to discharge polluted water – including the toxic organic chemicals themselves. Causing a Treatment Plant "upset" or "pass through" event is prohibited by Federal Regulations – substantial fines and penalties can result.

Whether your concern is for worker safety, the economic well-being of your business, regulatory compliance, safeguarding the Treatment Plant, or protecting the health of the Bay, the proper treatment, handling and control of toxic organic solvents and liquids is important, and one way your company helps protect the fragile South Bay environment every day.



*spotlight on*



## Streamline Circuits

Two water-saving projects are projected to save almost 9 million gallons a year at Streamline Circuits, resulting in lower water bills and reduced sewer fees. Even better, they received \$62,000 in financial rebates toward the cost of the installations.

Due to their conservation efforts, Streamline has increased circuit board production by over 60% in the past year while water usage has increased by only 30%. A growing printed circuit board manufacturer in Santa Clara, Streamline began to evaluate water efficiency measures as part of their expansion plans in 2004. They recognized that saving water and reducing wastewater made both economic and environmental sense. All levels of the organization – from the President/CEO to design engineers to equipment operators – were deeply committed to and involved in identifying, evaluating and implementing various aspects of the water efficiency projects.

The first project Streamline identified involved installing a closed-loop chiller system to cool process equipment in the circuit board operations. Previously the water made one pass prior to discharge to the sanitary sewer, which averaged over 15,000 gallons of water per day. They replaced the single-pass cooling system with an 8-ton and a 10-ton chiller. The 10-ton chiller served two separate pieces of process equipment while the 8-ton chiller was used to cool a single piece of process equipment.

The chillers completely recycle the cooling water; require little maintenance; and being closed-loop, have resulted in a water savings of 15,000 gallons per day. Streamline also realized savings by doing most of the work in-house, including the designs and specifications of the chillers, the pre-project meter reading and most of the installation work. The entire project, from design to implementation to testing, took fewer than five months, and cost roughly \$52,000. Streamline received a WET rebate of \$26,082 or 50% of the project's base costs.

Streamline next evaluated their wastewater treatment system, where they saw an opportunity to recycle portions of their wastewater for reuse back into the process. An assessment of the various process discharge streams for reuse potential resulted in the discovery of three significant wastestreams compatible for treatment and reuse. The wastestreams were treated in an ion exchange system/de-ionized water system to make the wastewater suitable as feed water to the circuit board processes.

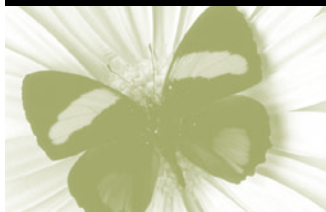
From planning to construction to full-scale operation, the project spanned a year, but was worthwhile as they realized a savings of over 18,700 gallons per day. With in-house staff contributing to the design and installation, the project costs hovered around \$180,000. Streamline received a WET rebate check for \$36,562.

Encouraged by their successes, Streamline continues to look for ways to save water and reduce wastewater, and anticipates more projects and participation in WET rebates. The Treatment Plant congratulates Streamline for their efforts in reducing their discharge to the Bay.

**FOR MORE INFORMATION: The Water Efficient Technologies program provides financial rebates to companies that develop eligible methods for reducing their wastewater discharge. The program offers a one-time rebate of \$4 per hundred cubic feet of water saved per year (748 gallons), and up to 50% of project costs to a maximum of \$50,000 per project. Water and sewer savings are separate and ongoing. Visit [www.slowtheflow.com](http://www.slowtheflow.com) or call the WET coordinator at (408) 945-3000.**



If you would like to ask a question, please send an email to [tributary.tribune@sanjoseca.gov](mailto:tributary.tribune@sanjoseca.gov)



**Question:** If I know I will not have everything required for submitting my Self Monitoring Report (SMR) on-time (missing water bills, missing QA/QC, etc.), what should I do?

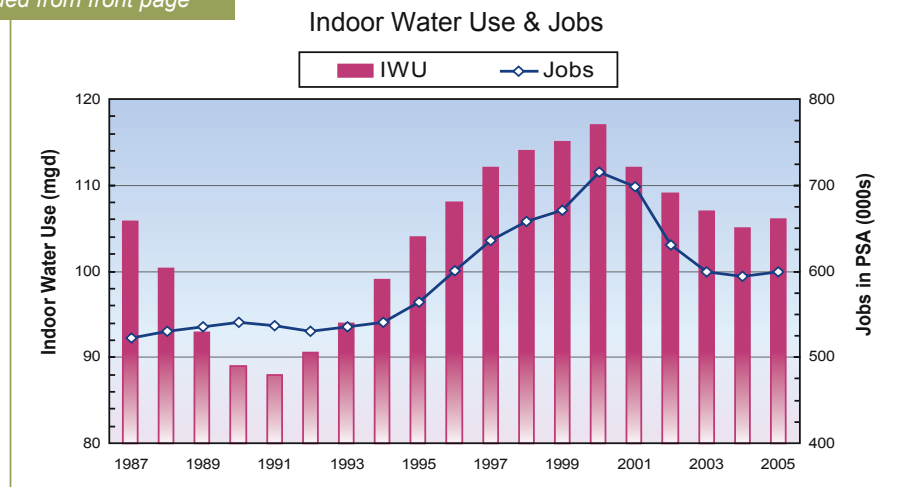
### Answer:

- 1)** Submit everything you have, with the SMR cover form correctly filled out and signed, by the due date. Include a letter explaining what is missing, why, and when you expect to submit the missing documentation to your Inspector. Even if flow or concentration data is not yet available, fill-out the SMR cover form as completely as possible and submit it by the due date.
- 2)** Present all required documentation in our office within 5 calendar days of the SMR due date to protect against enforcement action. This means, for example, that if the due date fell on a Tuesday, you would have until close of business (5:00 pm) Friday to submit missing documents, since we are closed on weekends.



In accordance with the Americans with Disabilities Act, City of San José Environmental Services Department materials can be made available upon request in alternative formats, such as Braille, large print, audio-tape or computer disk. Requests may be made by calling (408) 535-8550 (Voice) or (800) 735-2929 (CRS).

continued from front page



When the drought receded in 1992, local water experts projected usage to rebound to the previous level. Instead, of rising back up to the 75 gpd pre-drought rate, residential use leveled off at 67 gpd in 1996/1997, and has been dropping ever since as more and more people live in water conserving residences. The drop is the result of conserving behavior, and changes to plumbing codes requiring water-conserving devices (e.g. showerheads and faucet aerators) in remodels and new construction. This drop in usage has acted as a counter-balance to a rising population, resulting in an essentially flat indoor water use growth curve for our residential sector.

While our water use at home determined indoor water use trends up to 1992, the economy and job growth has been the primary driver ever since. As shown in the figure above, the number of jobs in the service area rose steadily since 1992, adding 185,000 jobs (+35%), peaking at 715,000 in 2000. The corresponding rise in indoor water use (+26%) leveled off in 2000, following job declines downward into 2004 where both trends leveled off.



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