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APPENDECIS

Executive Summary

The Environmental Services Department (ESD) administers the San Jose/Santa Clara Water Pollution Control Plant (Plant) on behalf of the City of San Jose (City) and the Tributary Agencies. This report documents progress on implementation of the requirements of the National Pollutant Discharge Elimination System (NPDES) permit elements during the period January 1, 2000 to June 30, 2000. Some of the highlights for this reporting period include:

- Reaching consensus on copper and nickel impairment issues
- Completing final reports on the *Headworks Loading Analysis Study* and the *Selected Organic Source Investigation*

The City's strategy to implement the NPDES permit focuses on integrating local and regional programs to achieve cost-effective protection of the South San Francisco Bay (South Bay). This report is organized based on the following elements:

1. Flow Reduction
2. Pollutant Reduction
3. Research and special studies
4. Regional cooperative efforts
5. Public outreach

Flow Reduction

The City continues to work on flow reduction efforts to keep the discharge of effluent from the Plant below 120 million gallons per day (mgd). Highlights for this reporting period include:

- The South Bay Water Recycling Program is currently delivering approximately 8 mgd of recycled water - nearly twice the amount delivered in June 1999.
- We are anticipating meeting effluent limits for the second consecutive irrigation season as a result of increased demand for recycled water and continued water conservation measures.
- A final Flow Audit Study report has been prepared. More than 150 projects were identified, with approximately 50 projects having a payback period of 5 years or less. The City will continue working with Industrial Users on implementing the Audits.
- The Water Efficiency Program is refocusing its efforts into areas such as targeting new audiences for ULFT replacement and programs focused on other water saving devices.

Pollutant Reduction

The Plant has met its pollutant effluent limits throughout this reporting period. The effluent values for copper and nickel were well under the discharge limit, and averaged 3.73 μg/l copper and 6.8 μg/l nickel.

The following major efforts occurred during this reporting period:

- Final reports for the *Headworks Loading Analysis Study* and the *Selected Organic Source Investigation* were completed.
- The *Trunkline Monitoring Program* continues to monitor the level of pollutants in sewers and investigate the sources of any extreme values.
- The *New Industry/Development* Team, now known as the *Development Application Review* group, continues placing ESD requirements into the City's development application review process.

Research and Special Studies

The copper/nickel TMDL process is nearing conclusion, and stakeholders have agreed to adopt site-specific objectives for copper and nickel in the South Bay contingent upon the adoption of action plans to maintain current water quality and protect beneficial uses in the South Bay. The TMDL Workgroup forwarded these action plans to the Santa Clara Basin Watershed Management Initiative, who will use the action plans to develop site-specific objectives and permit requirements, address remaining uncertainties, and propose a Basin Plan amendment to the Regional Board.

Regional Cooperative Efforts

Progress on the Watershed Management Initiative is continuing. Highlights over the last six months include:

- Completed and released an abridged version of the *Watershed Characteristics Report*.
- Began implementing the *watershed assessment framework.*
- Developing a pictorial vision of the watershed in 2050 to be used as an outreach and education tool.

Additionally, the City's pilot Watershed Grants program is providing resources and support for community and stakeholder involvement in the local watershed management process.

Outreach

During this reporting period, public outreach measures supported the important efforts highlighted above by focusing on flow reduction, water conservation, and watershed management education.

For details on the schedule for completion and a current status on the various outreach elements, refer to Appendix A.

Next Steps

Over the next six months, the City will emphasize:

- Maintaining the flow below 120 mgd by implementing flow reduction programs.
- Reviewing and analyzing flow reduction options, and developing long-term flow reduction strategies
- Supporting the regulatory process to implement the TMDL workgroup recommendations for copper and nickel.
- Participating in the development of the Mercury TMDL plan.
- Continuing participation in the Watershed Management Initiative process.
- Developing an integrated monitoring plan to coordinate all data and monitoring efforts.
- Continuing investigation of additional cooperative efforts with individual industries as well as larger industrial groups.

Abbreviations

Audit	Flow Audit Study
BMP	Best Management Practice
CBS	Clean Bay Strategy
City	City of San Jose
District	Santa Clara Valley Water District
EIR	Environmental Impact Report
ESD	Environmental Services Department
IU	Industrial User
Initiative	Santa Clara Basin Watershed Management Initiative
LTO	Limited Time Offer
MFD	Multi-Family Dwelling
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
Plant	San Jose/Santa Clara Water Pollution Control Plant
PAHs	Polyaromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
POTW	Publicly Owned Treatment Works
Regional Board	San Francisco Bay Regional Water Quality Control Board
RMP	Regional Monitoring Program
South Bay	San Francisco Bay, South of Dumbarton Bridge
State Board	State Water Resources Control Board
SBWR	South Bay Water Recycling
TCAA	Tri-County Apartment Association
The Program	Santa Clara Valley Urban Runoff Pollution Prevention Program
TMDL	Total Maximum Daily Loads
TSS	Total Suspended Solids
TOC	Total Organic Carbon
ULFT	Ultra-Low Flush Toilet
US EPA	United States Environmental Protection Agency
WEP	Water Efficiency Program
WET	Water Efficient Technologies

UNITS OF MEASURE

af/yr	acre-foot per year
ccf	hundred cubic feet
gpd	gallons per day
lbs/day	pounds per day
lf	linear foot
mgd	million gallons per day
mg/l	milligrams per liter
µg/l	micrograms per liter
ppt	parts per trillion

I FLOW REDUCTION AND WETLAND MITIGATION

The Environmental Services Department (ESD) administers the San Jose/Santa Clara Water Pollution Control Plant (Plant) on behalf of the City of San Jose (City) and the Tributary Agencies. In response to marsh conversion and protection of endangered species habitat, ESD proposed the original *San Jose Action Plan*[1] in 1991. The three main components of that plan were marsh mitigation, water conservation, and water recycling. The San Francisco Bay Regional Water Quality Control Board (Regional Board) approved, and the City adopted the *San Jose Action Plan,* with a goal to reduce flows from the Plant to under 120 million gallons per day (mgd). The City proposed a *Revised South Bay Action Plan*[2] in June 1997 amidst concerns that the Plant had attained several milestones outlined in the 1991 *San Jose Action Plan,* but was still exceeding the 120-mgd trigger. The Regional Board approved and incorporated the *Revised South Bay Action Plan* in the Plant's 1998 NPDES[3] permit. The revised plan called for the following: expanding the indoor water conservation and water recycling programs, promoting the industrial water recycling and reuse programs, furthering the inflow/infiltration reduction programs, and developing environmental enhancement pilots.

A detailed look at the progress in each program is presented in the subsections that follow. The combined efforts of these programs have brought the 1999 average dry weather effluent flow (ADWEF[4]) below 120 mgd, as shown in Table 1. We are anticipating a similar outcome in 2000 based on averages during May, June, and July, resulting from increased usage of recycled water.

1. 1999 ADWEF

MONTH	FLOW, mgd		
	INFLUENT	DIVERTED*	EFFLUENT
August	128.6	8.8	119.8
September	126.4	9.8	116.6
October	124.3	12.3	111.9

* Includes Recycled Water to SBWR distribution system, seasonal storage at the Plant, and Plant irrigation

I-A SOUTH BAY WATER RECYCLING

South Bay Water Recycling (SBWR) is an on-going effort to reuse high-quality effluent from the Plant. The goal of the program is to protect endangered species habitat at the southern end of San Francisco Bay, and to provide a reliable, drought-proof supply of recycled water for the benefit of the community.

Findings and Accomplishments

Recycled water use for May 2000 averaged 6.7 mgd, while use in June averaged 7.4 mgd. These numbers compare with the 1999 use of 3.4 mgd and 4.5 mgd in May and

[1] In accordance with Board Order 91-152
[2] In accordance with Board Order 97-111
[3] In accordance with Board Order 98-052
[4] Average Dry Weather Effluent Flow is the lowest average flow rate for any 3 consecutive months between May and October

June, respectively, representing an increase of about 3 mgd. Monthly usage of recycled water during 1999 is shown in Table 2; it averaged 6.1 mgd during the dry weather season.

1. Recycled Water Usage

MONTH	MONTHLY USAGE, mgd	
	1999	2000
May	3.4	6.7
June	4.5	7.4
July*	6.4	8.3

* July 1-22, 2000

During this reporting period, 38 new recycled water customers were brought online, bringing the total number of connected customers to 260. New customers increased the connected Average Day Maximum Month demand[5] for recycled water from 9.4 to 10.0 mgd.

The construction of a recycled water demonstration garden at *Guadalupe River Park and Gardens* began in 1999. The goal of this project was to promote the use of recycled water in Santa Clara Valley by demonstrating that recycled water can be used effectively and successfully in local landscapes. The high turnout of volunteers for the event confirmed strong community support for such endeavors. Additional funding is available in fiscal year 2000-2001 to further this project.

Next Steps

The City has identified a number of expansion projects to be implemented in the near-term that will expand the recycled water distribution system within San Jose, Santa Clara, and Milpitas. A conceptual design plan, an Environmental Impact Study, and a Negative Declaration are have been completed. Upon City Council review and approval of this design this fall, construction of the first alignments of the expansion will begin in spring 2001. The expansion plans have incorporated system storage, operational reliability, and system looping components to minimize operation and maintenance costs, meet all design criteria, and ensure availability of recycled water to customers.

A concurrent effort is underway to identify short-term alternatives and long-term (10-20 years) strategies needed to maintain flows at the Plant below 120 mgd during the dry weather season. This effort, which will be brought to the City Council later this summer, will be coordinated with the Bay Area Regional Water Recycling Program and the Santa Clara Valley Water District's Integrated Water Resources Plan to capitalize on state and federal funding opportunities and to ensure that recycled water is incorporated into the overall Santa Clara Valley water supply plan.

[5] Average Day Maximum Month demand is the peak monthly average flow expected for a recycled water customer, and is used to determine the peak recycled water demand for customers during the dry weather flow period. Peak months typically occur during July or August. This value can vary with temperature, rainfall, and evapotranspiration.

I-B INDUSTRIAL RECYCLE AND REUSE

The objective of the Industrial Recycle/Reuse Program is to ensure that Industrial Users (IUs) in the Plant's service area are reducing the use of potable water, recycling their own wastewater, or using recycled water from SBWR in their facilities to the largest extent possible.

For this reporting period, efforts were focused on completing, reviewing, and reporting results of the Flow Audit Studies (Audits).

Findings and Accomplishments

1. FLOW AUDIT STUDY (Audit)

For this reporting period, ESD staff completed a final report summarizing the findings from the Audit. A copy of this report is in Appendix B. Of the original 57 dischargers, 33 completed Audits. Twenty-four dischargers verified that their baseline flows were below 100,000 gpd or that they had closed part or all of their facilities. Although permitted industrial companies dominated the original participant list; non-permitted dischargers (hotels, hospitals, universities, jails, etc.) comprised nearly one-third of the final participant list. This finding confirms that investigating flow reduction opportunities requires looking beyond the industrial sector, identifying measures that are applicable to other sectors as well.

Approximately 155 projects were identified from the 33 Audits submitted. Fifty-two projects were noted as having a payback of five years or less. With complete implementation, these projects represent a potential flow reduction of approximately 1.0 mgd. Other projects with a payback of greater than five years may be made cost-effective with additional analyses and/or financial incentives.

2. WATERSHED GRANT AGREEMENT

As part of a joint program grant to the *Silicon Valley Manufacturing Group* and the *Silicon Valley Pollution Prevention Center*, Ron Chiarello of Stanford University completed surveys of rinse optimizations at HADCO Santa Clara, MMC Technology, Agilent Technologies (formerly Hewlett Packard), and Intel. Mr. Chiarello submitted his final report[6] in March 2000; this report is available on the ESD web site.

The Rinse Optimization report details basic methodologies to be used when evaluating rinse optimization and provides examples of where these companies could make, or have made improvements. The following is an excerpt from the report's executive summary:

> "Implementation of the methodology can lead to reduction in rinse process times of 25% - 80% and water savings of 25% - 80%. Total UPW costs $0.1/gallon for city feed, processing and sewer cost; direct annual cost savings would be $4.26 million. Additional savings greater than $1 million per factory can be realized by avoiding upgrades in UPW and waste treatment plants. Also, decreased rinse cycle times lead to increased product throughput. In previous work, reductions in rinse cycle times of 25% have lead to a 3% increase in factory output. Furthermore, increased product throughput in wet tools can

[6] Rinse Optimization for Reduction of Point-of-Use Ultrapure Water Consumption in High Technology Manufacturing, Ronald P. Chiarello, Ph.D., Stanford University.

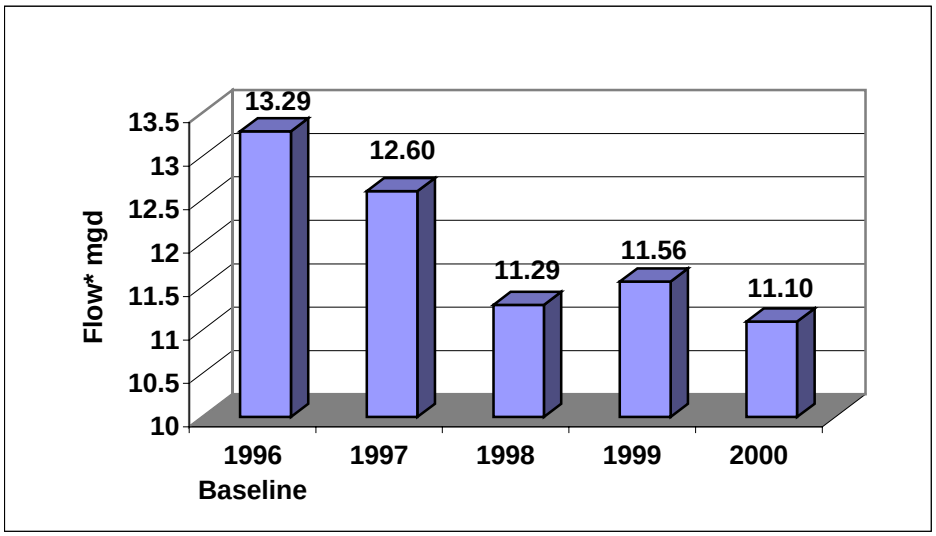
result in a decreased number of wet tools in the factory. In the semiconductor industry each wet tool costs about $1 million."

The City will continue to work with the above companies to follow-up on their efforts to optimize rinses and share this information when possible.

3. INDUSTRIAL DISCHARGERS

The City continued to work with industrial dischargers to reduce flows to the sewer system by offering financial incentives and technical support. As shown in Figure 1, the average discharge from industry for this reporting period is 11.10 mgd - which is down from the 1999 discharge of 11.56 mgd.

1. Average Flow from Industrial Dischargers



*Flows adjusted based on detailed analysis

1. INDUSTRIAL WASTEWATER REUSE GUIDELINES

The City is working on developing guidelines for industries on reusing industrial wastewater onsite. These guidelines will standardize water reuse requirements, assist City Departments in evaluating reuse projects, and help maintain a level of consistency during the various permitting processes. All affected City departments are currently reviewing the draft document. A copy of the final guidelines will be included in the January 2001 *Clean Bay Strategy* Report.

2. COOLING TOWER GUIDELINES

The City is also working on developing guidelines for using recycled water from SBWR or reusing process water in cooling towers. The core audiences for these guidelines are industrial and commercial cooling tower owners; heating, venting, and air-conditioning system (HVAC) owners; and maintenance personnel. These guidelines will include some or all of the following:

- Management of cooling towers to protect water quality
- Operation of cooling towers to maximize efficiency and minimize water use

- Considerations prior to using SBWR recycled water or reusing process waters in evaporation systems

The tentative date for completion of the guideline document is January 2001.

Next Steps

The City will continue to promote the voluntary implementation of projects through the Water Efficient Technologies program that offers financial incentives for companies to use toward completing their flow reduction projects. There is also a commitment to continue stakeholder participation by coordinating with the *Silicon Valley Manufacturing Group*, the *Silicon Valley San Jose Chamber of Commerce*, as well as other manufacturing/professional associations to continue promoting flow efficiencies and reductions.

The Audit program is expected to be an ongoing strategy of the City's flow reduction efforts. The City will solicit comments and evaluate participants' feedback about the Audit Protocol and process, make changes and/or streamline the process as necessary. City staff is currently evaluating 1998/99 industrial discharge data and water use data to identify facilities – expanding or new – that discharge 100,000 gpd or more, and might be included in the next phase of the Audits.

The recycling guidelines and cooling tower guidelines are currently scheduled for inclusion in the January 2001 *Clean Bay Strategy* Report. The City will continue to investigate additional cooperative efforts with individual industries as well as larger industrial groups.

I-C INDOOR WATER CONSERVATION

Administered by the City's Water Efficiency Program (WEP), the Indoor Water Conservation element of the *Revised South Bay Action Plan* has a flow reduction goal of 5-8 mgd over a five-year period, with an annual flow reduction goal of not less than 1 mgd.

The WEP focuses its efforts most heavily on residential customers, who contribute 70% of the Plant flows. In turn, the specific emphasis of residential programs is the retrofit of Ultra Low Flush Toilets (ULFTs) as the single most effective residential water conservation measure. Individual program incentives depend on the program element and community sectors targeted, and include rebates, vouchers, ULFT distribution events, and full-service installation.

In the business sector, the program's efforts include toilet retrofits and the Financial Incentive Program (FIP) - now known as the Water Efficient Technologies (WET) program. WET offers rebates for equipment and process changes that reduce the company's discharge to the Plant.

Findings and Accomplishments

The Water Efficiency Program achieved approximately 870,000 gallons of flow reduction per day in fiscal year 1999-2000. This reduction is 13% below the annual goal of 1 mgd, and is attributable to delays in implementing the Small Multi-Family Dwelling Pilot Program (Small MFD), Community Partnership Program (CPP), and the Single-Family Dwelling Fee for Service (SFD-FFS) Program. For the current fiscal year, these programs were combined into a single contract to provide greater efficiency and to achieve reduced cost-per-toilet. Detailed information regarding each of these

programs and the success achieved through the various water conservation efforts is described below.

Since its conception in 1992, WEP has retrofitted 108,825 toilets, with a cumulative flow reduction of 4.19 mgd. Overall, a cumulative total of 3.6 mgd of flow reduction has been achieved over the first three years of the 5-year period, and WEP is well on its way to reaching the 5-year flow reduction goal of 5-8 mgd.

I-C1 ULFT REBATE PROGRAM

Serving primarily single-family residences with rebates of up to $75 per toilet, the Rebate Program was offered by the Santa Clara Valley Water District (District) and administered through local water companies. The Plant provided marketing support for the program throughout the Tributary area (including the cities of San Jose, Santa Clara, Milpitas, Cupertino, Saratoga, Monte Sereno and Los Gatos).

As shown in the table below, collection of final Rebate Program data continued throughout this reporting period. The limited time offer proved to be highly successful, with the Program exceeding its fiscal year goal by 61%.

# ULFTs			Flow Reduction (gpd)		
Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1992 to Date)	Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1992 to Date)
10,000	19,784	108,825	300,000	713,000	4,190,000

With the close of the ULFT Rebate Program, the residential audience will have two new programs to take advantage of: A toilet distribution program where residents can pick up a free toilet and install it themselves, or a Fee For Service Program in which residents can sign-up to have a toilet delivered and installed for a fee.

I-C2 COMMUNITY PARTNERSHIP PROGRAM (CPP)

Four individual programs, with separate target audiences but each including installation components, have been incorporated into one contract. The City Council approved the contract in June 2000. Implementation of the contract will begin in the 2000-2001 fiscal year.

1. FULL SERVICE SMALL MULTI-FAMILY DWELLING PROGRAM (Small MFD)

This program targets a large number of owners and managers of Small MFD complexes (containing up to 50 units or less) in the tributary area who were not targeted in the previous MFD Voucher Program or who have little time to manage a “toilet” project on their own. The program provides, at a fee of $15, a new toilet, associated hardware, installation, and recycling of all replaced toilets, as well as one-year follow-up service. The goal for fiscal year 2000-2001 is the installation of 14,200 toilets.

2. COMMUNITY PARTNERSHIP PROGRAM (CPP)

Designed to target "hard-to-reach" communities such as low-income, disabled, and elderly homeowners who are unlikely to otherwise retrofit their older toilets with toilets, this program provides free installation, associated hardware, recycling of replaced toilets, and one year follow-up service. This program has been expanded to include the entire Tributary service area with a goal of 7,500 toilet installations for fiscal year 2000-2001.

3. SINGLE FAMILY DWELLING FEE-FOR-SERVICE PROGRAM (SFD-FFS)

This program is designed for single-family homeowners who are not eligible for the Community Partnership Program and those who might have responded to the now-ended ULFT Rebate program. The SFD-FFS program provides, at a $50 per toilet cost, installation of a new ULFT and associated hardware, recycling of replaced toilets, and one-year follow-up service. The program has a fiscal year 2000-2001 goal of 1,000 toilet installations.

4. SINGLE FAMILY AND MULTI-FAMILY DWELLING DISTRIBUTION PROGRAM

During the first full-service pilot ULFT distribution event, San Jose residents were provided with approximately 300 toilets, with an associated flow savings of 9,155 gpd. The WEP has scheduled two additional distribution events to determine the effectiveness of the Rebate programs. These events will be held on August 5 and September 2, 2000, and are expected to reach a larger audience and provide a total of 2,700 additional toilets to participants.

The data collected from this Pilot Distribution Program will be provided to the District to help them effectively design their new Distribution Program scheduled to begin in the fall of 2000.

I-C3 MULTI-FAMILY DWELLING (MFD) VOUCHER PROGRAM

Providing "pre-bates" of $75 per toilet and free toilet recycling services to apartment owners and managers, the program continued a previously successful tactic of adding a final limited time offer to the $75 voucher amount, bringing the total amount to $100 per toilet. The program extended the March 30, 2000 deadline to June 30, 2000, in an effort to garner "last-minute" participation from potential program participants.

The impact of the extended offer resulted in only moderate interest from the MFD audience, largely as a result of program saturation to larger complexes in the Plant service area, and participant resistance to the Voucher process itself. As shown in the table below, adding the 716 toilets awaiting installation to those already completed, the MFD Program will meet only 22% of its goal for this fiscal year, with a total of 1,016 toilets installed.

# ULFTs			Flow Reduction (gpd)		
Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1997 to Date)	Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1997 to Date)
5,000	300	20,303	275,000	17,000	1,142,000

With the end of the Voucher Program in June 2000, the District will now administer and oversee the ULFT program. The District plans to use a full-service contractor to provide toilets, at a $25-50 per toilet cost, with free recycling and disposal. It is anticipated that this program design will offer sufficient incentive to overcome the reluctance of owners and managers for whom the voucher program incentive was not enough.

I-C4 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII) ULFT PROGRAM

This program includes the City Facilities Program as well as the CII Voucher Program. The City Facilities Program retrofits selected municipal facilities with ULFTs. During this reporting period, 187 toilets were installed in City facilities. Since San Jose has completed the retrofit of nearly all City facilities, the program will target tributary city facilities for retrofit in the next fiscal year. The program will offer financial incentives similar to the CII Voucher Program for the retrofit of older, high-flow toilets.

The CII Voucher Program offers from $100 to $150 per toilet for businesses switching to ULFTs. As shown in the table below, the Voucher Program installed 22 toilets this reporting period, bringing the fiscal year total to 711. To increase participation, the Program decided to adjust voucher amounts to differentiate between gravity-flow toilets (up to a maximum of $100 per toilet) and commercial-grade pressure-assisted toilets or flush-o-meters (up to a maximum of $150 per toilet). However, ongoing issues surrounding permitting of San Jose facilities, as well as owner and manager resistance to the process itself continue to keep program participation low.

# ULFTs			Flow Reduction (gpd)		
Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1997 to Date)	Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1997 to Date)
900	711	3,360	43,200	34,128	161,280

The City and the District will work together to target businesses such as restaurants, wholesale facilities (i.e. Costco), and other establishments with high occupant/restroom ratios. This sector will be addressed primarily through the District's fee-for-service program scheduled to begin in the fall of 2000.

I-C5 WATER EFFICIENT TECHNOLOGIES (WET) PROGRAM (previously known as the FINANCIAL INCENTIVES PROGRAM)

The WET Program provides rebates of up to $50,000 per project to companies that implement equipment and process changes that reduce the amount of discharge to the sanitary sewer. Rebate amounts are based on the amount of flow reduction garnered from a project, at a rate of $4 per ccf/year of flow savings.

The program focuses on the largest dischargers, including those in the Flow Audit Study program (see Section I-B for details). Continued activities will include encouraging implementation of measures identified through the Audits.

Additionally, the program will be a part of an upcoming campaign to encourage water efficiency throughout the business community. The recent name change was devised to coincide with this campaign slated to run from August through October 2000, and support program marketability.

Past performance for this program has shown that projects in the business sector can easily take a year or more from project initiation to project completion. For this reporting period, a number of large projects remain incomplete. The reasons include difficulty in installing flow monitoring equipment in a timely manner and challenges in obtaining plumbing permits on reuse systems. In the coming months, City staff will review the program process and identify opportunities to overcome barriers to successful project completion. A set of guidelines is also being developed related to the permitting of industrial reuse systems (See Section I-B for details). Currently, in addition to the completed projects summarized in the table below, there are 17 outstanding applications, with associated flow savings estimated at more than 0.39 mgd.

# Completed Applications		Flow Reduction (gpd)		
Fiscal Year 99/00 to Date	Program (1991) to Date	Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program (1991) to Date
5	51	200,000	164,000	927,000

I-C6 OTHER CONSERVATION PROGRAMS

Since 1998, the Plant has co-funded the District's participation in the Horizontal Axis Washer Rebate Program offered by PG&E. Washing machines have been shown to be a high water-use appliance in the household, second only to toilets. This program offers customers a rebate toward the purchase of water- and energy-efficient appliances. A summary of sales for the reporting period is shown in the table below. In January 2000, PG&E lowered their rebate amount from $100 to $75 per machine, which lowers the total amount available to the participant from $175 to $150 per machine. The PG&E program concludes in September 2000. The District will thereafter implement a new program for participants in the Plant's tributary area, with both the District and the Plant each contributing $50 towards the purchase of these machines.

# Washers			Flow Reduction (gpd)		
Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1998 to Date)	Fiscal Year 99/00 Goal	Fiscal Year 99/00 to Date	Program Total (1998 to Date)
6,000	4,156	9,238	87.600	58,184	129,332

In conjunction with local water retailers, the District performs residential water surveys called **Water Wise Housecalls** as a part of their residential conservation program. The surveys consist of inventory and measurement of flow rates for water-using fixtures, leak-detection, and the provision of low

flow devices where appropriate. Since toilet flappers have been identified as being responsible for the majority of indoor water leaks, residential water surveys are being used as a vehicle for their replacement. The District has found it challenging to get residents to participate in the survey program. Therefore, the Water Efficiency Program is currently developing an incentive to increase the participation of single-family owners and multi-family owners. This incentive will be targeted at the top ten percent of water users, based on winter water use data. Flapper replacement might be expanded beyond the District's survey participants in the coming fiscal year.

Additionally, the District administers a **Commercial Washer Program** to provide $125 rebates to commercial laundromats and nursing facilities, and $75 rebates to multi-family residential buildings with common-area laundry rooms. The Plant will fund this rebate offer by reimbursing the District $125 per washer for commercial installations and $75 per washer for multi-family installations.

The District is performing a **Pilot Program** to sub-meter Mobile Homes. The program offers rebates to mobile home customers for the installation of sub-meters that allow end users of water to be billed for the volume of water they use, potentially reducing water consumption by 25%. The Plant will contribute to this Pilot Program by reimbursing the District up to $27 per sub-meter.

Next Steps

The flow savings estimate numbers currently used to estimate flow savings from different water conservation programs primarily originated in research performed locally and in Southern California in the early 1990s. The Water Efficiency Program is evaluating more recent research and models to determine if more accurate numbers have been developed since then. Additionally, the Water Efficiency Program is considering performing research on two of the audiences it serves - single-family dwellings with elderly, disabled, or low-income occupants, and small multi-family dwellings - to develop and test more accurate flow savings estimate numbers.

This year, the WEP is implementing a Pilot Flapper Replacement Program in conjunction with the District's residential water surveys to replace leaking flappers. The goal for fiscal year 2000-2001 is 4,600 surveys. The program is providing incentives such as movie tickets to participants. This Pilot might form the basis of a wider program to be implemented later in the fiscal year.

Additionally, the WEP is investigating the feasibility of developing ordinances such as ULFT retrofit upon resale and the sizing of plumbing pipes used in new construction. The WEP will also investigate new technologies for their flow reduction potential and feasibility of implementation.

I-D GROUND WATER INFILTRATION REDUCTION

In keeping with its flow reduction efforts, the City has investigated sources of groundwater infiltration (infiltration). Since conventional methods of locating infiltration during previous years did not yield conclusive results, investigative efforts during the past six months were directed towards areas of potential infiltration identified by the City's Department of Public Works.

Findings and Accomplishments

Manhole rehabilitation in the Downer-Cannoas Basin, the Almaden Valley area, and the Santa Teresa Boulevard area will reduce infiltration up to 4-5 mgd:

- Manhole inspections conducted in 1991 and 1999 identified 8 manholes contributing infiltration into the sanitary sewer system in the sub-basin DC-1 of the Downer – Cannoas Basin. The City will replace these structurally deteriorated manholes by July/August of 2000. The replacement of these manholes is expected to reduce infiltration by 0.25 mgd.
- Manhole inspections conducted in the fall of 1999 identified several leaky manholes along the trunk sewer lines in the Almaden Valley area of Basin A. Infiltration through these leaky manholes was estimated around 2.1 mgd.
- A closed circuit television (CCTV) inspection conducted in the trunk lines along the manholes identified approximately 8,500 linear feet (lf) of sewer line exhibiting excessive infiltration. Of these, approximately 4000 lf was associated with lateral connections needing repair/rehabilitation.
- The existing manhole at the junction of in the Santa Teresa Blvd. - Bailey Road is scheduled for replacement by the fall of 2000, and is expected to reduce infiltration into the Santa Teresa Boulevard sewer line by 2-3 mgd.
- The West Valley Sanitation District conducted flow measurements in six basins and estimated a total infiltration of 6.8 mgd. The current target is the reduction of infiltration in mini-basin H-01 within the Hamilton sub-basin. Reduction of infiltration in Mini-basin H-01, with 54,285 lf of sewer line and contributing 0.59 mgd of infiltration appears to be the most cost-effective rehabilitation project.

Next Steps

The City will implement a flow-monitoring program in the fall of 2000 at the manholes along the 4000 lf of sewer lines in the Almaden Valley area that has been identified as contributing infiltration through lateral connections. Following flow monitoring, the City plans to design a repair/rehabilitation program for the Almaden Valley area.

I-E MARSH MITIGATION

The contribution towards the purchase of the Baumberg Tract, the Moseley Tract, and Bair Island has made it possible for the City to fulfill its marsh mitigation requirement.

I-E1 BAUMBERG TRACT

A final update for this element was included in the July 1999 *Clean Bay Strategy* Report.

I-E2 MARSH MITIGATION PROJECT - MOSELEY TRACT

The City has found the joint use of the Moseley Tract for tidal marsh restoration and the Caltrans stormwater collection basin for the Highway 84 right-of-way and flood control management to be extremely difficult. The City is currently assessing salt marsh mitigation alternatives to the Moseley Tract.

I-E3 BAIR ISLAND

A final update for this element was included in the July 1999 *Clean Bay Strategy* Report.

II POLLUTANT REDUCTION

The Plant has met its pollutant effluent limits throughout this reporting period: The effluent mass values for copper and nickel were well under the discharge limit, and totaled 1,485 pounds copper and 2,684 pounds nickel. The effluent concentration values for copper averaged 3.73 μg/l, ranging from 1.4 – 8.2 μg/l. Nickel averaged 6.8 μg/l, ranging from 4 – 11 μg/l.

To reduce pollutants to the South Bay, the City uses a multi-pronged, continuous improvement approach involving infrastructure optimization, pretreatment programs, partnerships with industry, and special studies. The goal is to ensure that programs are efficient, cost-effective, and based on science. Regional cooperative programs, including the Urban Runoff Management Program and the Watershed Management Initiative, are also key elements in achieving this goal.

II-A SJ/SC WATER POLLUTION CONTROL PLANT

Optimization of in-Plant operations has helped the Plant meet its pollutant limits. In an effort to better characterize pollutants entering the Plant, the following studies were initiated:

- Develop an appropriate methodology to quantify flows and concentrations to the Plant from various sectors
- Identify the presence and evaluate potential sources of organochlorine pesticides, PCBs, and dioxins in the Plant's influent
- Trace pollutant sources and characterize sanitary sewer drainage basins
- Identify source control and pollution prevention opportunities

II-A1 OPERATIONS and MAINTENANCE MANUAL

The Plant's O&M Manual provides both Plant personnel and regulators with a source of information that describes treatment process equipment, operating strategies, monitoring routines, and maintenance routines. Nine chapters of the O&M Manual were updated as a result of modifications to equipment and operating procedures:

- Headworks Redundancy System
- Primary Scum Transfer & Odor Scrubbing System
- Screen Press System
- Biological Nutrient Removal System
- Air Compressor System
- Backup Disinfection/Dechlorination System
- Water Champ System
- Distributed Control System
- South Bay Water Recycling System

The updated O&M Manual was submitted to the Regional Board in June 2000.

II-A2 HEADWORKS LOADING ANALYSIS WORKPLAN

The goal of the Headworks Loading Analysis Study is to develop an appropriate methodology to quantify flows and concentrations from various sectors including residential, commercial, and un-permitted industrial as well as from groundwater inflow and infiltration. Information from the Study will be used to evaluate local limits and focus outreach and enforcement activities.

Findings and Accomplishments

This summary presents the four main findings of the Headworks Loading Analysis Study. For further details, please refer to the *Headworks Loading Analysis Study Report* enclosed in Appendix C.

1. Total Water Use

Water use data appears to be a good indicator of wastewater discharges on three levels. The volume of wholesale water distributed to all users within the Plant service area during the winter months is very consistent for the years 1997 through 1999. The average winter water use during the three years is 142 mgd. Considering that the Plant influent flow is generally 85% of the total winter water use, a sharp increase or decline in water use should coincide with similar changes in Plant influent flow.

Based on the study "City's Water Use and Conservation Baseline Study," water use values for different types of residential dwellings appear to provide an accurate estimation of wastewater discharged from the residential sector. Combining water use data and the total number of dwellings in the Plant service area finds that approximately 77 mgd is discharged from the residential sector. Employment statistics and estimates of the water use per employee in four commercial sectors were used to develop a reasonable estimation of wastewater discharges. Based on the number of jobs within the Plant service area and estimated water use per job, the commercial sector discharges approximately 41 mgd. Water use records are not suitable for estimating discharges from commercial dischargers.

The industrial sector discharges roughly 10 mgd.

2. Copper Loading

Estimates for copper loading from the commercial, residential, and industrial sectors account for 64% of the influent copper to the Plant. The remaining 36% of the influent copper suggest that contributions from the three sectors have been under-estimated or that a significant source of copper has not been identified. A finding from the *Trunkline and Upstream Monitoring Program* and surveillance monitoring of industrial dischargers has shown that industrial facilities have discharged more copper than estimated from compliance monitoring data. Previous mass balance calculations resulted in 27% excess copper[7] in 1994, 47% excess copper in 1995, and 27% excess copper in 1996. These results indicate that an excess loading of copper has existed in the past, and ranged from 25% to 50% of the total Headworks loading. The implication

[7] The excess copper refers to the amount of copper remaining when the sum of the estimated contribution from the commercial, industrial, and residential sectors is subtracted from the copper loading at Headworks. Alternatively, it is the amount of Headworks loading in excess of the estimated value.

is that, at the minimum, excess copper loading should not be more than 2% of the total loading, and probably could be reduced below 25%.

3. Nickel Loading

Estimates for nickel loading from the commercial, residential, and industrial sectors account for 97% of the influent nickel. Previous mass balance calculations resulted in 43% excess nickel in 1994, 50% excess nickel in 1995, and 27% excess nickel in 1996.

In 1995, 50% of the nickel loading was in excess of the estimated value. In 1996, after the City conducted surveillance monitoring, excess nickel loading dropped to 27% of the estimated value. In 1999, after several large industrial dischargers of nickel discontinued their manufacturing processes, excess nickel loading fell to 3% of the estimated value. This is well within error tolerance limits.

4. Mercury Loading

Estimates for mercury loading from the commercial, residential, and industrial sectors as well as from dental offices account for 86 % of the influent mercury to the Plant. Dental offices contribute the greatest amount of mercury loading to the Plant, accounting for one-half the total loading. Residential sources are the next largest contributor, discharging one-fifth of the total mercury loading.

Next Steps

After discussing issues resulting from the *Headworks Loading Analysis Report,* City staff will decide on an appropriate course of action.

II-A3 SELECTED ORGANICS SOURCE INVESTIGATION

The goals of the *Selected Organics Source Investigation* was to determine whether permitted Industrial Dischargers discharge any organochlorine pesticides, PCBs, or dioxin to the Plant. This investigation is being coordinated with the Special Effluent Study (see Section III-A).

Findings and Accomplishments

City staff conducted the following tasks to identify the presence of organochlorine pesticides, PCBs, and dioxin in the Plant influent and to evaluate potential sources of these compounds:

- Reviewed the records and manufacturing processes of all industrial users discharging 1,000 gpd or more for the use, generation, or storage of organochlorine pesticides, PCBs, and dioxin.
- Evaluated NPDES monitoring data from March 1993 through March 2000 for the presence of organochlorine pesticides and PCBs.
- Conducted weekly influent monitoring for 12 weeks to detect the presence of organochlorine pesticides and PCBs.
- Surveyed the current regulations for the use of organochlorine pesticides and current availability.
- Surveyed businesses within the Plant's service area for facilities with the potential to discharge organochlorine pesticides, PCBs, and dioxin.

This investigation was unable to detect the presence of organochlorine pesticides, PCBs, and dioxin in the Plant influent and identify any potential sources of these compounds. For further details, please refer to the *Selected Organics Source Investigation Report* enclosed in Appendix D.

Next Steps

The investigation employed standard sampling and analytical procedures. The *Special Effluent Study for Certain Organic Pollutants* is using more sensitive techniques and would be able to detect organochlorine pesticides, PCBs, and dioxin at much lower concentrations. The results of the *Special Effluent Study* will be reviewed to determine if further work is needed to identify potential sources of compound detected in the Plant influent and effluent. At this time, no opportunities have been identified.

II-A4 TRUNKLINE AND UPSTREAM MONITORING

The City has conducted the *Trunkline and Upstream Monitoring* program over the past four years, tracing pollutant sources and characterizing sanitary sewer drainage basins.

Findings and Accomplishments

The combined loading for total copper decreased slightly from the previous period. If it were not for the extreme values observed at T-1 and U-SC2, total copper loading would have decreased significantly. Total copper loading for the most recent 3-month period is thought to be near expected levels. Total and dissolved nickel loading decreased from the previous reporting period and is currently near expected levels. Loading for dissolved copper has increased to the highest level reported. Dissolved copper loading for the most recent 3-month period is thought to be slightly less than the previous reporting period, but still greater than expected levels.

Figures 2 through 5 show the average daily mass loading for the five trunklines entering the Plant for nine reporting periods, with each period representing a six-month interval.

Figure 2 shows the average daily loading of total copper at each of the trunklines. Total copper loading at the five trunklines has decreased slightly from the previous period. Copper loading at T-2 decreased 22 % from the previous period, and is the second lowest of the nine reporting periods. A 57 % increase in loading at T-1 and a 154 % increase at U-SC2 offset this reduction. The increased loading at T-1 and U-SC2 are largely a result of extreme values occurring between November 1999 and February 2000. Removing four extreme values from the T-1 data set results in copper loading unchanged from the previous period. For U-SC2, five extreme values are responsible for over half of the total increase in loading. Using the most recent three months of data, the total copper loading at the five trunklines would be slightly less than the loading for the seventh reporting period (12/98 - 5/99). Monitoring of potential copper sources upstream of T-1 was initiated in February 2000. The source was not identified and no extreme values have occurred since. Monitoring of potential sources upstream of U-SC2 was not conducted.

Figure 3 shows the average daily loading of dissolved copper at each of the trunklines. Current dissolved copper loading at the trunklines has increased slightly from the previous period. Dissolved copper loading at T-1, T-2, and U-SC2 are at the highest values measured. About half of the increase in dissolved copper loading is due to the same extreme values identified as causing increased total copper loading.

Figure 4 shows the average daily loading of total nickel at each of the trunklines. Total nickel loading has decreased 18 % from the previous reporting period. Four of the five trunklines show a reduction in total nickel loading.

Figure 5 shows the average daily loading of dissolved nickel at each of the trunklines. Dissolved nickel loading has decreased 14%, showing a similar trend as the total nickel.

Next Steps

The program will continue to monitor the trunkline and upstream sites as needed and used the collected data to support surveillance, inspection, and outreach efforts.

II-A5 PLANT STUDIES

A final update for this element was included in the January 2000 *Clean Bay Strategy* Report.

Figure 1: Total Copper Loading by Trunkline

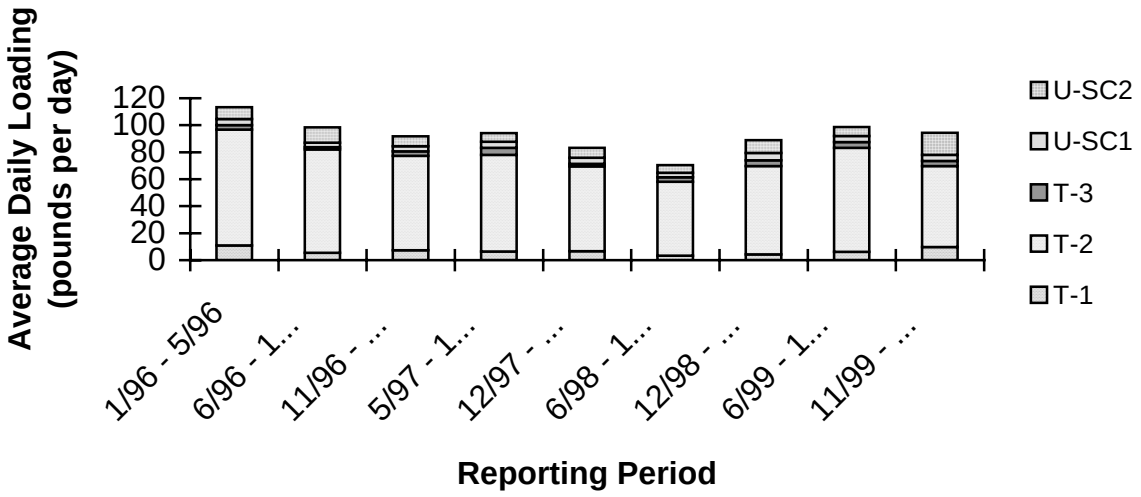


Figure 2: Dissolved Copper Loading by Trunkline

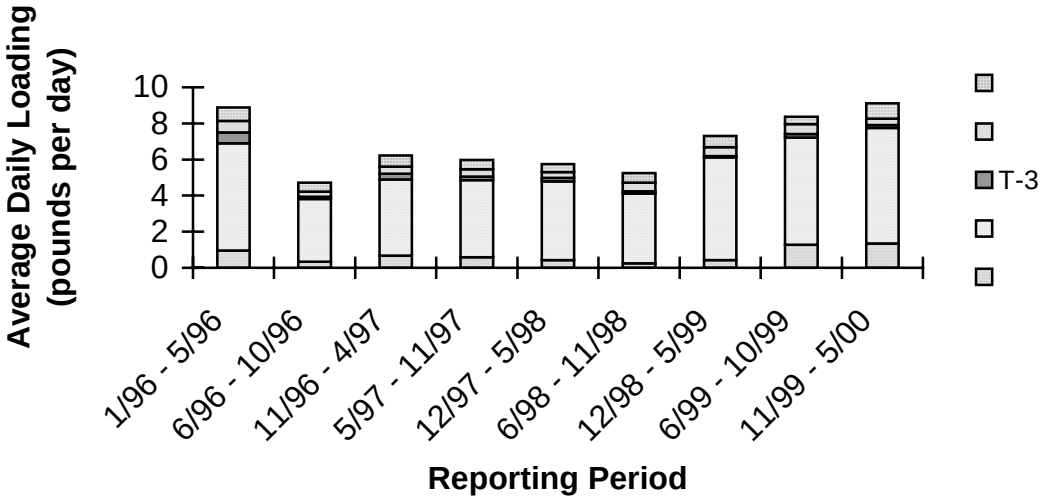


Figure 3: Total Nickel Loading by Trunkline

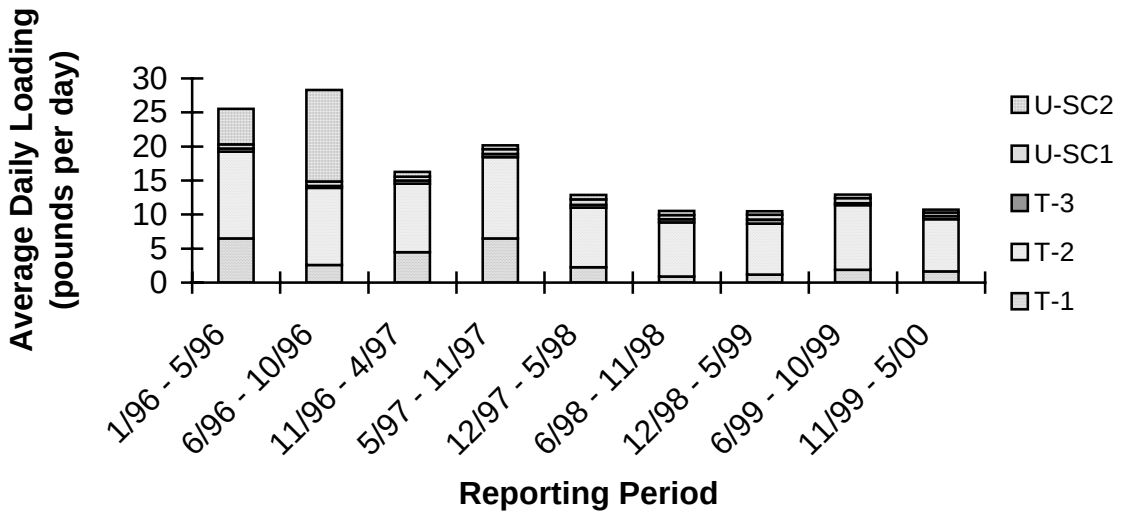
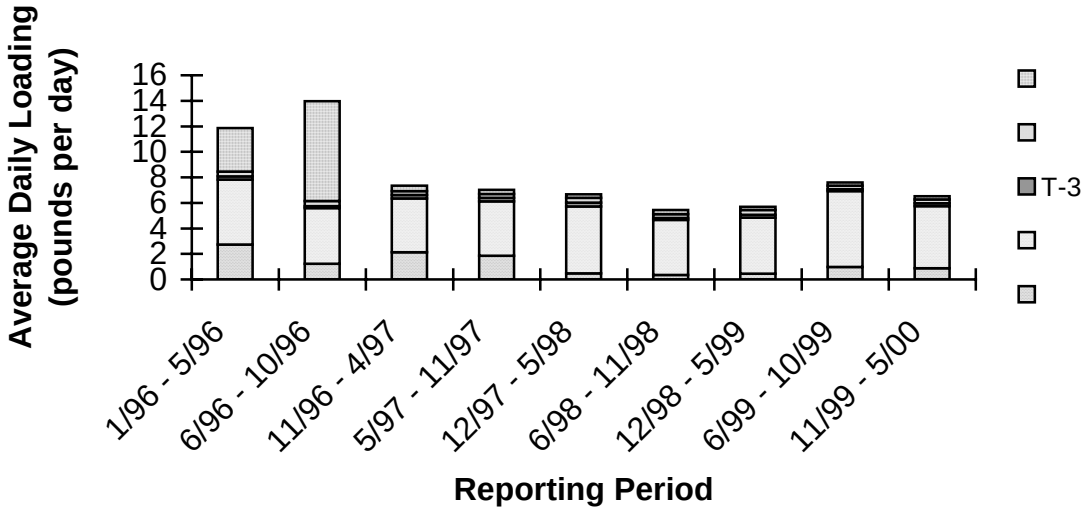


Figure 4: Dissolved Nickel Loading by Trunkline



II-B THE PRETREATMENT PROGRAM

The *New Industry/Development* program, now called the *Development Application Review* process, continues to provide significant input into the City's development application review process. Partnerships with industry have engaged dischargers in evaluating innovative pollutant reduction techniques.

II-B1 INDUSTRIAL WASTEWATER DISCHARGE MUNICIPAL CODE

The City has initiated a proposed amendment to its municipal code that will allow the collection of a Wastewater Discharge Permit fee from non-industrial dischargers that require permits under the new definition of "Critical User". Previously, only industrial dischargers were defined as Critical Users requiring Wastewater Discharge Permits. As a result of changes to the Municipal Code adopted in June 1998, the term "Critical User" was expanded to include any discharger discharging in excess of 100,000 gallons per day.
The City is likely to adopt the amendment by August 2000. The City will notify all tributary agencies through the Technical Advisory Committee (TAC) and the Treatment Plant Advisory Committee (TPAC), and ask them to adopt comparable fees.

II-B2 NEW INDUSTRY/DEVELOPMENT PROGRAM

The New Industries/Development Team (NIDT), now known as the *Development Application Review* group, consists of representatives from all of ESD's environmental programs. The group reviews development projects in San Jose during the planning process to identify and address issues that might affect environmental programs. Wastewater discharge reduction, recycled water use, onsite industrial wastewater reuse, and pollutant load minimization are some of the parameters used to evaluate new industry/development projects.

Findings and Accomplishments

For this reporting period, the *Development Application Review* group reviewed and responded to the following:

- 2 Administrative Draft *Environmental Impact Reports* (EIRs)
- 1 *Preliminary Staff Assessment* released by the California Public Utilities Commission, in response to the *Application for Certification* filed by the Metcalf Energy Center, requesting authorization for construction of the Calpine power plant in South San Jose
- 50 Projects identified for potential industrial pollutant and/or wastewater reduction measures
- 43 Projects identified for potential use of recycled water

Next Steps

The *Development Application Review* group is working on improving the effectiveness of the Development Application Review process. Some of the next steps mentioned in the January 2000 *Clean Bay Strategy* Report (such as

producing brochures for developers and working with WET Team) will be incorporated in the workplan for the following year.

II-B3 INDUSTRIAL DISCHARGER RESEARCH STUDIES

In May and June 2000, ESD staff visited several out-of-state industrial facilities to see how other areas have implemented water reuse projects. The hosting companies were Intel Corporation (Chandler, AZ; Hillsboro, OR; and Aloha, OR) and LSI Logic (Gresham, OR). The purpose was to identify potential water efficiency strategies that could be used at industrial facilities in the Plant's service area. ESD staff also held discussions with City of Chandler staff regarding local reuse projects and industrial growth issues faced by Chandler. One project of interest was the treatment of industrial wastewater to drinking water standards and its injection into the groundwater to replenish the local aquifer in Chandler, Arizona. More than 1.3 mgd of segregated rinsewater are sent directly to a dedicated reverse osmosis treatment site that paid for by Intel but owned and operated by the local municipality. While expensive, this project has the dual benefit of increasing water reuse and supplementing the local drinking water supply. ESD staff focused on the cost of treating industrial rinsewaters for reuse and the relative applicability of this treatment for reuse, not necessarily for groundwater recharge, but as a potential source of feed water for ultrapure water systems at high tech companies. It also served as a compelling example of long-term public-private partnership as a means of servicing new development.

Both Intel and LSI Logic are piloting (or preparing to pilot) projects that would send treated industrial wastewater to ultrapure water systems. They both currently reuse industrial wastewater in their mechanical systems, so these pilots are a movement towards closing the loop on water use/reuse. ESD staff will keep in contact with both companies to follow the results of their efforts. When the companies make detailed information about those projects public, it will be posted on ESD's website. The information gathered during these trips will be used as a frame of reference for further work with our local industries.

II-B4 INDUSTRIAL POLLUTANT LOADING STATUS

Table 3 shows the industrial flows for 1997 (baseline), 1998, and 1999 as well as copper and nickel loading to the Plant from permitted industrial dischargers. Figures 6 - 9 illustrate the trends in flow and loading.

Findings and Accomplishments

Permitted Industrial copper loading is below both the 1997 baseline and 1999 levels. Total nickel loading continues to decline since 1997 as disk manufacturers close their production operations in our service area. Although total copper loading has decreased, Group 2 dischargers have shown an increase in copper loading over the past five months. One reason for this increase is that several electronic manufacturers and semiconductor

manufacturers have begun using an industrial process that involves copper plating.

Overall flow from permitted industries has decreased by approximately 500,000 gallons per day during the first five months of the year. Companies are implementing measures identified in their Flow Audit Studies, continuing to identify water use efficiencies at their facilities, and/or closing processes.

Figure 1: Industrial Flow and Copper & Nickel Loading

Discharger	Cu, lbs/day				Ni, lbs/day				Flow, mgd			
	1997	**1998**	**1999**	**2000***	**1997**	**1998**	**1999**	**2000***	**1997**	**1998**	**1999**	**2000***
Group 1	5.24	4.27	6.48	5.70	2.51	1.47	1.63	1.66	2.76	2.29	2.53	2.48
Group 2	3.52	3.51	2.10	2.74	3.82	3.48	3.20	2.82	9.81	8.97	8.99	8.57
Group 3	0.03	0.02	0.03	0.04	0.03	0.01	0.02	0.04	0.03	0.03	0.04	0.05
Total	**8.79**	**7.80**	**8.61**	**8.48**	**6.36**	**4.96**	**4.85**	**4.52**	**12.60**	**11.29**	**11.56**	**11.10**

*January 1, 2000 – May 31, 2000

Next Steps

During the next reporting period, staff will also continue to work with the electronics and semiconductor manufacturers to review treatment technologies for removing copper from the wastestream.

The next phase of the Flow Audit Study effort will begin this year. For more details about that program, refer to Section I-B of this report or the Flow Audit Study Summary report that is posted on the ESD website.

Figure 1: Industrial Copper Loading

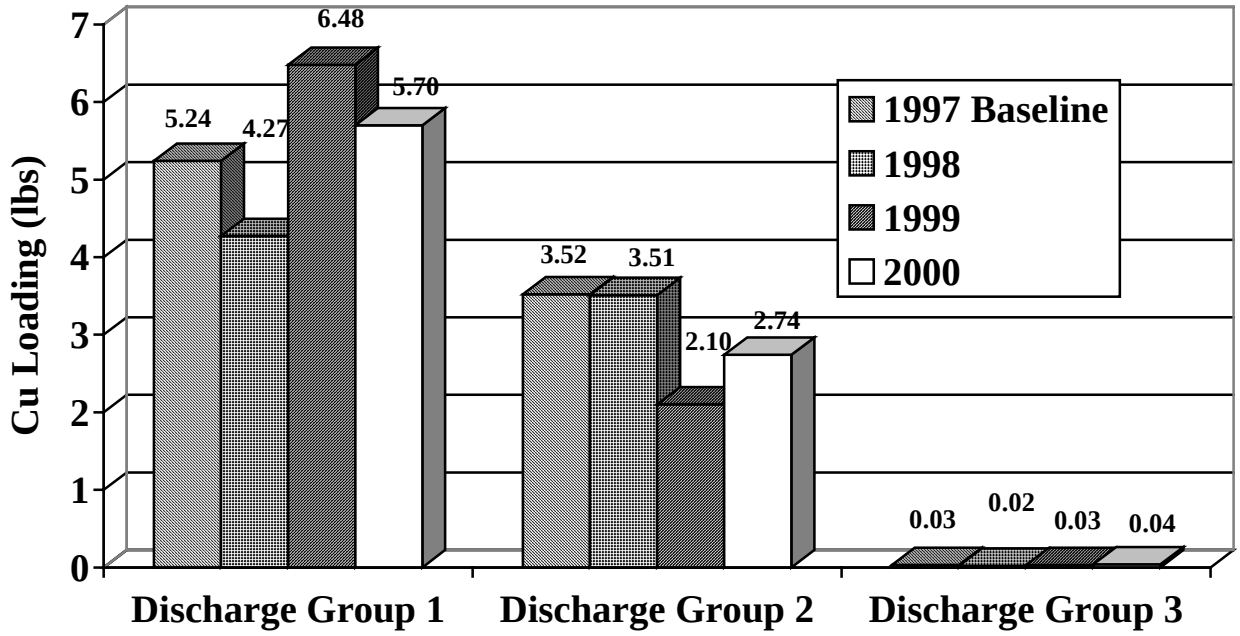


Figure 2: Industrial Nickel Loading

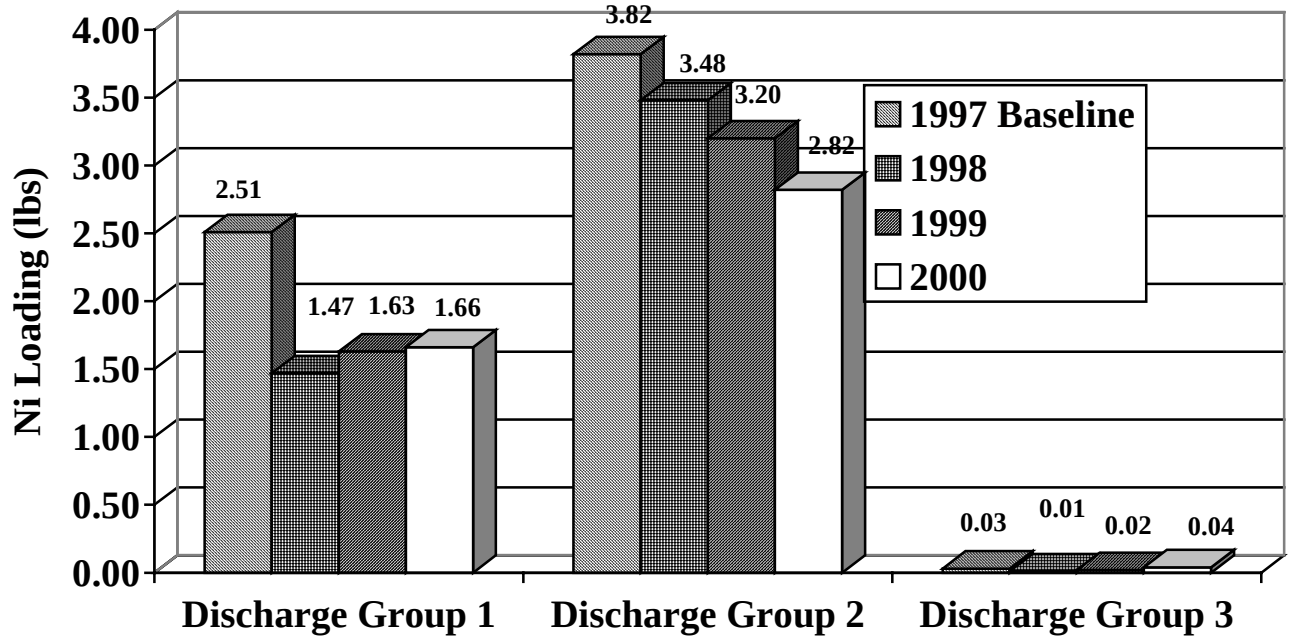
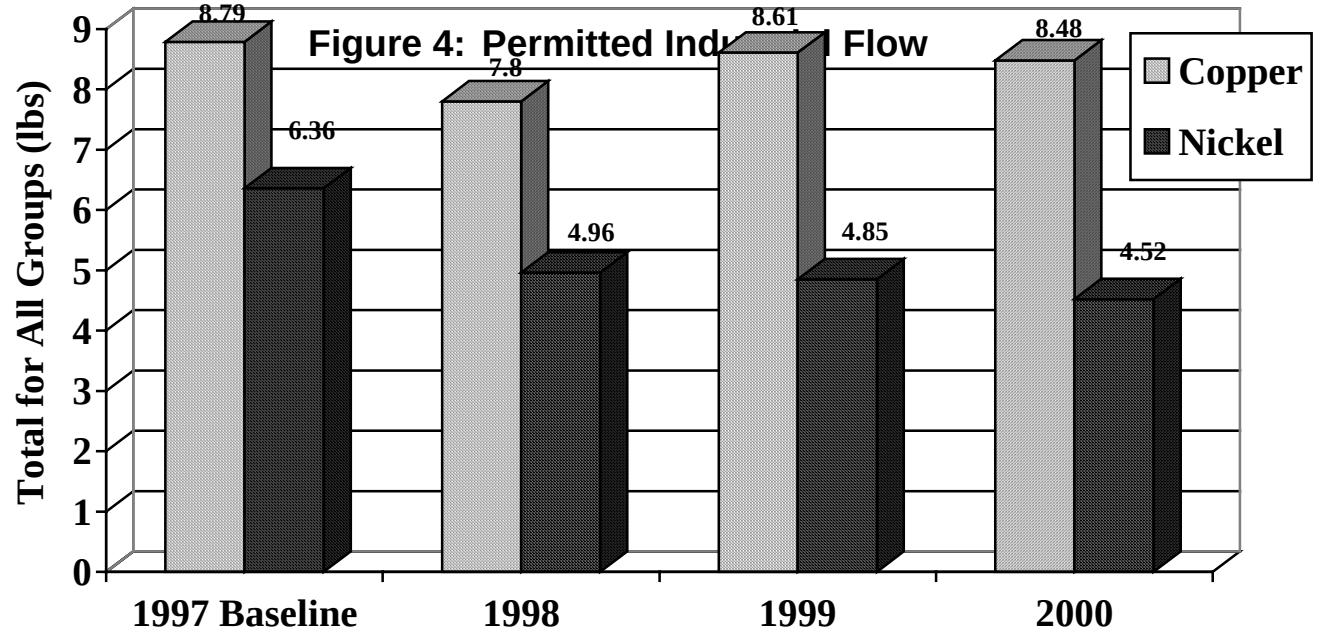
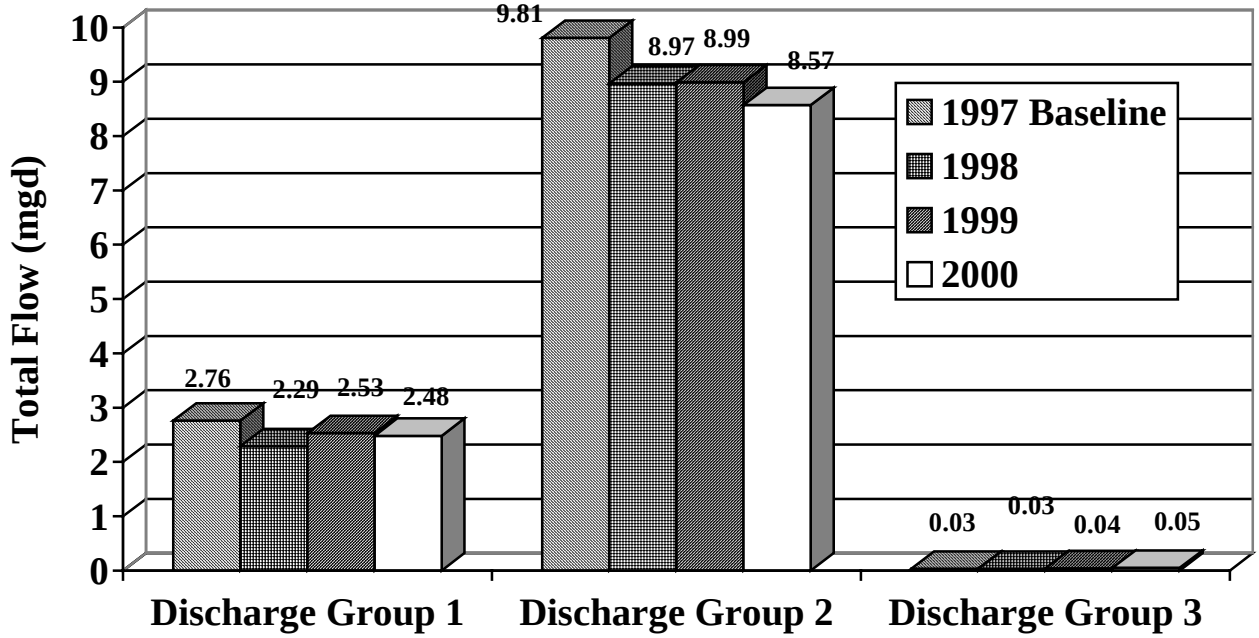


Figure 3: Industrial Total Copper and Nickel Loading





III RESEARCH AND SPECIAL STUDIES

With a goal of collecting additional data that will further scientific understanding and support scientifically based regulatory decisions in the future, the City has been involved in several local and regional research studies. Each study is described in greater detail below.

III-A SPECIAL EFFLUENT STUDY FOR CERTAIN ORGANIC POLLUTANTS

The purpose of the *Special Effluent Study For Certain Organic Pollutants* Study is to determine the concentrations of organic pollutants in treatment plant effluents using analytical techniques with the appropriate sensitivity, and to assess the sources of variation in complex trace analytical sampling and analysis. The Trace Organic Contaminants have been categorized into PAHs (Polycyclic Aromatic Hydrocarbons), PCBs (Polychlorinated Biphenyls), pesticides and dioxins. The program is a cooperative effort between the Cities of Palo Alto, San Jose, and Sunnyvale. The Fairfield-Suisun Sewer District is also participating in this study at a reduced sampling frequency.

Findings and Accomplishments

The first sampling event was undertaken in November 1999. Additional sampling was also performed in February and April 2000, with the final sampling event planned for July 2000. Data for the first sampling event is still undergoing quality assurance review at this time.

Next Steps

- Evaluate contract lab low-level analytical performance, ultra-trace sampling reproducibility, and ultra-clean sampling practices.
- Assess this data to identify and estimate the type and magnitude of organic contaminants are discharged.
- Based on this information, design methods and procedures to better meet Regional Board requirements.

III-B MERCURY TMDL PARTICIPATION PLAN

The City continues to participate in the Regional Board's Mercury Council, representing both the City and the Bay Area Dischargers Authority Laboratory Committee. The City is also represented on the Council through the Santa Clara Valley Urban Runoff Pollution Prevention Program. In addition, the City has committed significant resources toward the Regional Monitoring Program's Atmospheric Deposition Pilot Study.

In addition to the Bay effort, City staff is participating in the Watershed Assessment Subgroup of the Santa Clara Basin Watershed Management Initiative, which serves as the stakeholder forum for the Guadalupe watershed mercury TMDL effort. This group is currently developing a TMDL workplan and evaluating resource requirements. Phase I of the work plan focuses on developing a conceptual model for mercury that would identify significant sources, environment fate and transport, and impairment of beneficial uses. The conceptual model is important for establishing a common understanding of the problem and significant sources of mercury that can be controlled.

For this reporting period, Plant effluent monitoring for total mercury averaged 3 parts per trillion (ppt).

III-C SPECIAL WATER QUALITY STUDIES

Monitoring of water quality parameters and the development efforts for characterizing copper and nickel in the South Bay have allowed a better understanding of the beneficial uses of the South Bay.

III-C1 TRACE LEVEL MONITORING IN SOUTH SAN FRANCISCO BAY

The City continues to monitor water quality parameters monthly in the South Bay at 12 sampling sites representing deep channel, mid-channel, shallow mudflats, and areas of significant stream influence. The study provides indispensable information describing the spatial and temporal trends in water quality that enable a better understanding of beneficial use impairments in the South Bay.

Findings and Accomplishments

Study results continue to demonstrate decreasing ambient total copper and nickel concentrations on a northward gradient in the extreme South Bay. This water quality monitoring program will continue throughout 2000.

The draft Copper Action Plan resulting from the South Bay Copper/Nickel TMDL process recommends continued monthly monitoring of these stations, using dissolved copper concentration as an indicator for copper levels in the South Bay. A draft Nickel Action Plan is pending and delivery is expected within weeks of this writing.

The City has also begun a study to monitor potential changes in ambient bacterial levels related to the downward adjustment of treatment plant chlorination. To support this study, weekly bacteriology samples are being collected from six stations in the South Bay, one station in Coyote Creek, and two stations in Artesian Slough. Initial results show a large amount of natural variability associated with runoff events and high suspended sediment loads at the South Bay stations. However, bacterial levels in Artesian Slough have remained consistently low. Analyses have been modified to include total suspended solids, E. coli, total coliform, fecal coliform, and enterococci. After an appropriate preparatory monitoring period, chlorine treatment will be adjusted and all factors monitored for change. Plans call for monitoring in dry weather months because of the high variability introduced by storm and runoff events. Weekly sampling will continue throughout the study period.

III-C2 CALCULATION OF TMDL FOR COPPER AND NICKEL IN SOUTH SAN FRANCISCO BAY

Over the past six months, TMDL efforts centered on building consensus on the Impairment Assessment Report.

The purpose of the assessment was to present new information and to confirm the determination that the beneficial uses of the South Bay were impaired due to

ambient concentrations of copper and nickel. The impairment assessment used readily available information on ecological indicators to assess the existence and maintenance of beneficial uses of the South Bay.

There was wide-ranging agreement among the stakeholders that the weight-of-evidence approach used in the impairment assessment took full advantage of existing information to assess the existence and maintenance of beneficial uses in the South Bay. The TMDL Work Group formally accepted the three key findings of this report:

- Impairment of beneficial uses due to copper and nickel is unlikely
- Ranges of proposed site specific objectives for copper and nickel are scientifically defensible
- Uncertainties remain regarding the scientific information

Stakeholders agreed to the adoption of site-specific objectives for copper and nickel in the South Bay contingent upon the adoption of an Action Plan to maintain current water quality. The preparation of Copper and Nickel Action Plans is now nearing completion. These action plans are part of a non-degradation strategy based upon a tiered pollution prevention approach and will be implemented in NPDES permits to ensure that existing water quality is maintained and that beneficial uses are protected in the South Bay.

Next Steps

All reports, including the Source Characterization Report, Conceptual Model, Impairment Assessment, and action plans will be finalized and provided to the Watershed Management Initiative's Regulatory Subgroup. The Regulatory Subgroup will use the action plans to pursue development of site-specific objectives, discuss addressing remaining uncertainties, develop permit requirements, and a Basin Plan amendment.

III-D SALT MARSH CONVERSION ASSESSMENT

Marsh conversion studies are progressing as scheduled. The January 2001 *Clean Bay Strategy* report will provide the results of the 2000 vegetative assessment, and of the first year of continuous monitoring of tidal elevations and salinity in the tidal channels as well as porewater salinity, bulk density, and pH of the soil in the root zones of marsh vegetation in the Main Study and Reference areas. The analysis of this data and of other freshwater input variables will aid in determining the relative influences of environmental and anthropogenic factors affecting changes in marsh type.

III-E STREAM FLOW AUGMENTATION PILOT PROJECT

City staff has worked with the Santa Clara Valley Water District and various environmental groups in the current pilot phase of this project to determine an exact location and flow level for augmentation. Factors being studied include temperature, types of fish, stream habitats, and the location and type of surrounding ground water aquifers.

The City submitted the CEQA Initial Study and Mitigated Negative Declaration in June 2000 for a discharge site on Coyote Creek; these documents are currently available for

public review. City staff will submit a discharge permit application to the Regional Board in August 2000. If approved, staff will develop an implementation schedule.

III-F WETLANDS CREATION PILOT PROJECT

A wetlands creation pilot project using recycled water is one of the environmental enhancement projects included in the *Revised South Bay Action Plan*. The primary benefits of such a project include improved aesthetic value of the riparian habitat, wildlife habitat enhancement, and public education. This pilot project will be developed more fully when the stream flow augmentation pilot(s) have demonstrated positive results. A stakeholder process will be included in project development.

III-G AVIAN BOTULISM

During the period from June – November 2000, the San Francisco Bay Bird Observatory (SFBBO) will monitor Artesian Slough, Coyote Creek, and Alviso Slough for the presence of avian botulism and other avian diseases. The SFBBO conducts this special monitoring program under contract to the City. This study is part of a long-term monitoring program begun in 1982. Prompt collection and treatment of ill birds in conjunction with collection and disposal of deceased animals in the surveyed area enable the detection and control of disease outbreaks. The observations for 2000 will be included in the January 2001 *Clean Bay Strategy* Report. The observations for 1999 were in the January 2000 *Clean Bay Strategy* Report

III-H Local Effects Monitoring

A final update for this element was included in the July 1999 *Clean Bay Strategy* Report.

III-I Bioassessment of South Bay

The fundamental purpose of conducting bioassessment/biocriteria studies in the lower South Bay is to cooperatively develop, with the assistance of the academic and regulatory communities, bioassessment techniques that could possibly lead to site-specific environmental indicators for the South Bay. On December 13, 1999, the City submitted to the Regional Board a proposed Bioassessment Study Plan and companion Technical Support Document consistent with the intent of permit. The Executive Officer approved this Study Plan in correspondence dated January 5, 2000.
On January 25, 2000, Regional Board staff informed the City of recommended modifications to the Regional Monitoring Program (RMP) that could severely limit the effectiveness of our already approved investigations. On February 14, 2000, the City requested a time extension from the requirement to commence work on the previously submitted bioassessment studies. The Executive Officer approved the time extension in correspondence dated February 29, 2000. The City used this extension to discuss alternatives to bioassessment studies with Regional Board staff and other interested stakeholders, including a schedule and timeline to amend our NPDES permit requirements.

The City has discussed bioassessment alternatives with Regional Board staff and local scientific experts from the United States Geological Survey, San Francisco State University (SFSU), and the RMP. Following these discussions, the City worked with marine scientists from SFSU's Romberg Tiburon Center for Environmental Studies to produce a pre-proposal to develop bioassessment techniques for the South San Francisco Bay's plankton community. Regional Board staff have voiced their support for the proposed plankton studies and the development of a more detailed proposal at a meeting held on May 15, 2000. The City is continuing to work with the Regional Board and the academic community towards completion of the final proposal by late summer 2000. The proposed work will be conducted over four years with an anticipated start date of January 2001, and at a cost approximating $500,000 dollars. The City will submit the final research proposal for Regional Board approval prior to any official contracting for services.

IV REGIONAL COOPERATIVE EFFORTS

The City is involved in a number of regional cooperative efforts. The primary goal of these efforts is to maximize efficiency and effectiveness by prioritizing issues and solutions and involving key stakeholders on a regional basis.

IV-A URBAN RUNOFF MANAGEMENT PROGRAM

The work of the City's Urban Runoff Management Program is closely coordinated with the countywide efforts conducted by the Santa Clara Valley Urban Runoff Pollution Prevention Program (Program) as well as with the work of the Santa Clara Basin Watershed Management Initiative.

The Countywide Program and each co-permittee, including the City of San Jose, are currently discussing the provisions of the new Stormwater NPDES Permit. The Watershed Management Initiative's Regulatory Subgroup is serving as the forum for the discussions. Permit re-issuance is anticipated in October 2000.

IV-B WATERSHED MANAGEMENT INITIATIVE

Since 1996, the City has been an active participant in the Santa Clara Basin Watershed Management Initiative, a stakeholder-driven process to develop a community-based watershed management plan for the Santa Clara Basin, which drains to San Francisco Bay south of the Dumbarton Bridge. Stakeholders include state and federal regulatory and resource agencies, municipalities and treatment plants, civic and environmental groups, business and industry representatives, and agricultural interests.

The Watershed Management Initiative is led by a policy-making body, the Core Group, and is supported by ten subgroups. The City has committed significant staff and fiscal resources as have the Water District, the cities of Sunnyvale and Palo Alto, and other stakeholders. City and tributary agency staff are members of the Core Group and all subgroups.

Findings and Accomplishments

Since January 2000, the following has been accomplished:

Watershed Characteristics Report

Volume One of the Watershed Management Plan, the Watershed Characteristics Report, was released May 25, 2000. This report describes general physical and political characteristics of the Santa Clara Basin, including water bodies, cultural resources, flora and fauna, geography, land uses, water management facilities, and the regulatory setting as it pertains to watershed management.

Watershed Assessment Report

After much discussion, the stakeholders have agreed on an objective framework for analyzing the data such that conclusions resulting from the assessment can provide a sound basis for future management alternatives. The consultant has begun to assemble available data and use that framework to begin assessing three pilot sub-watersheds (San Francisquito, Guadalupe, and Upper Penitencia). The assessment will be used to determine the watershed's ability to support the appropriate beneficial uses including salmon/steelhead fisheries, rare and endangered animal and plant species, water contact recreation, water supply uses, and flood protection.

The City is providing significant resources for the development of the Watershed Assessment Report by contributing to funding for the assessment consultant as well as by providing staff resources and technical expertise.

Total Maximum Daily Load (TMDL)

Please refer to the "Special Studies" section for an update on the TMDL effort for copper and nickel and the "Mercury Participation Plan" section for an update on the Guadalupe Watershed Mercury TMDL effort.

Watershed 2000 Conference

The City, directly and through its participation in the Urban Runoff Program sponsored the South Bay Watershed Stewardship Conference held on May 25, 2000. The Conference introduced the work of the Initiative and Urban Runoff Program as well as the newly completed Watershed Characteristics Report (abridged version) to a wider audience.

Vision Development

The Core Group is developing a pictorial vision to show how a model community would look in 2050 if the Watershed Management Plan is implemented. The City is coordinating the development of the vision in partnership with the City of Palo Alto, who is funding the artist.

Regulatory Executive Forum

The Regulatory Executive Forum has met twice during the last six months. The Forum is intended to bring together high-level decision-makers from the regulatory agencies that oversee watershed activities in the South Bay. The Forum tracks issues, regulations, and upcoming initiatives that may impact the local watershed. Recent discussions include the TMDL process, upcoming changes in the Army Corps of Engineers' nationwide permitting structure, plans for marsh restoration and the San Francisco Airport Expansion.

Alum Rock Park

In February 2000, the Regional Board required the City to develop a Stream-Riparian Corridor Management Plan (Plan) for Alum Rock Park. As a result, the City's departments of Public Works; Conventions, Arts, & Entertainment; and Environmental Services began developing a Plan for managing and enhancing the creek banks. The Plan will include guidelines for managing stream bank erosion, stream protection, and stream bank repair that rely upon more natural looking materials, (e.g.; vegetation interplanted with rock instead of concrete sacks and walls), while protecting the road and park infrastructure.

The Plan is being developed with the assistance of the Watershed Management Initiative stakeholders since the Upper Penitencia Creek watershed is one of the pilot watersheds that will be assessed for the Watershed Management Plan. This watershed is also the subject of Santa Clara Valley Water District flood control planning process in a down stream section of the creek. The Stream-Riparian Corridor Management Plan is scheduled for completion in October 2000 and will provide the basis for Phase II Flood Damage Repair funded by FEMA as well as set out guidelines for ongoing maintenance to prevent further degradation of stream resources within the Park.

Facilitation Contract

The City has continued to fund a contract with MIG, Inc. for independent facilitation to the Core Group and Subgroups as needed, as well as to provide leadership on process issues, such as development of objectives for the WMI.

Riparian Restoration Action Plan

The City's Department of Planning, Building, and Code Enforcement is currently conducting a technical assessment of the Riparian Policy and preparing a Riparian Restoration Action Plan. In conjunction with that effort, the Initiative is using a grant from the EPA/Regional Board to conduct a pilot restoration project to test and refine the Action Plan. The goal is to develop transferable blueprints for urban creek clean-up, restoration and protection projects applicable throughout the Santa Clara Basin and the entire San Francisco Bay area. An Advisory Committee comprised of members of the Initiative, including City staff, the Santa Clara Valley Water District, Santa Clara County and civic and environmental groups, is overseeing the effort.

Watershed Grants

The City of San Jose's Watershed Grants Program demonstrates the City's commitment to stakeholder involvement in the City's watershed activities by providing resources to support community involvement and innovative efforts in conserving and restoring the Santa Clara Basin Watershed. The goals of this Program are to:

- Foster and implement innovative solutions to local watershed problems.
- Encourage partnerships and joint ventures.
- Acquire new participants and challenge existing participants.
- Increase awareness of watershed issues.
- Leverage resources.

A report outlining the first year of the program and an evaluation of grant activities was provided to the San José City Council at their April 18, 2000 meeting. At that time, Council approved the Watershed Grants Program for the Year 2000. The Request for Proposals was subsequently sent to several city mailing lists of neighborhood, civic and business organizations (500+) and the Santa Clara Basin Watershed Management Initiative email listing. An announcement was also placed on the Environmental Services web site and in *the San Jose Mercury News*. A pre-proposal meeting was held on May 3, 2000 with 5 attendees for the question and answer session. Proposals were due May 22, 2000.

Twenty-one proposals were received by the due date for this second year of the Watershed Grant Program. For the first year, ten proposals were received. A proposal evaluation team assisted in the review of the proposals from May 23-June 6, 2000. The team consisted of the following organizations:

- External Reviewers
- Environmental Services Department staff
- Planning, Building & Code Enforcement Department staff
- Community Foundation Silicon Valley
- San Jose/Santa Clara Water Pollution Control Plant—Technical Advisory Committee (Cupertino Sanitary District and City of Milpitas)
- U.S. Environmental Protection Agency—Region IX
- Santa Clara Valley Water District

Proposals were reviewed according to criteria described below and in the Request for Proposals and assigned a numerical rating. In order to be eligible for a Watershed

Grant an organization would need to be a tax exempt nonprofit 501 (c) (3) within the state of California. Criteria included:

- Expertise in watershed management and/or community participation and outreach activities related to environmental issues
- Demonstrated ability to work with different kinds of organizations
- Demonstrated organizational and program success
- Fiscally and administratively responsible
- Ability to leverage resources

The reviewers then met on June 7, 2000 to discuss the ratings and prepare final recommendations. A total amount of $190,000 was available for the program grants, and $47,500 for operating support grants.

The Director of ESD is reviewing final recommendations, with announcements of final awards scheduled for summer of 2000.

IV-C REGIONAL MONITORING PROGRAM

The Regional Monitoring Program (RMP) is a comprehensive monitoring program administered by the San Francisco Estuary Institute. It assesses sediment and water quality, as well as the toxicity and bioaccumulation of priority pollutants. The RMP monitors numerous locations in the San Francisco Bay and the Sacramento/San Joaquin Delta, and now samples two times per year during the winter and summer. The City supports one additional sampling station in the southern end of the Bay, Station C-3-0. This station is monitored in cooperation with the Regional Board and the San Francisco Estuary Institute. The City also provides significant resources toward the Estuary Interface Pilot Study and the Atmospheric Deposition Pilot Study. A final report for the 1997 RMP sampling year was released in February 2000. An annual meeting to discuss the scientific results of the 1998 sampling year was also held in March 2000. The City will continue its active support and participation in the Regional Monitoring Program throughout 2000.

V OUTREACH

The City provides outreach on flow reduction and pollution prevention. For this section of the report, we have introduced some changes in an effort to present accurate information, emphasize highlights, and improve future outreach efforts. Highlights of the outreach activities for this reporting period are presented below; details are given in Appendix E.

V-A FLOW REDUCTION PUBLIC OUTREACH

Flow reduction outreach is done in support of the South Bay Water Recycling (SBWR) Program and the Water Efficiency Program.

V-A1 SOUTH BAY WATER RECYCLING (SBWR) OUTREACH

The purpose of SBWR outreach is to educate the public and customers about the benefits of recycled water, and increase its use among customers. Marketing activities for this reporting period include:

- Completed fact sheet detailing water discharge and supply challenges in conjunction with Santa Clara Valley Water District
- Conducted customer outreach meetings: Evergreen School District's Superintendent; Montgomery school teachers; the PTA at Dove Hill school; and to Silver Creek High School teachers
- Conducted outreach events: Turf & Landscape Expo; Watershed 2000 conference; Guadalupe Gardens and Arena Green Earth day events; and San Jose Giants Water Awareness night
- Advertised with a billboard at San Jose Municipal ballpark, a SBWR customer
- Conducted recycled water presentations to water organization representatives from England and France

Anticipated Marketing Activities for the period between July and December 2000 include:

- Conduct a stakeholder meeting regarding the SBWR expansion plan
- Conduct update meetings with the editorial staff of the San Jose Mercury News and with business trade associations, community and environmental groups
- Presentations to constituents of business trade associations, community and environmental groups
- Complete and mail water challenges brochure (expanded version of fact sheet)
- Complete and distribute edition of SBWR's Connections newsletter
- Update SBWR collateral, customer binder, and trade-show materials
- Continue to provide marketing support for sales team

V-A2 WATER EFFICIENCY PROGRAM OUTREACH

The purpose of water efficiency outreach is to advocate water conservation in the commercial and residential sectors.

Findings and Accomplishments

Ultra-Low Flush Toilet Outreach Evaluation

In March 2000, ESD's Water Efficiency Outreach Team completed a final report evaluating the ULFT Final Rebate Offer outreach efforts during the 1999 dry weather period. As of March 30, 2000, about 19,784 rebates were processed in the Plant's tributary area, and approximately 25,000 countywide. Goals for the campaign to get 10,000 rebates were exceeded. A summary of findings from the evaluation is given below:

- A total of 11,090 rebate requests were received during the 1999 dry weather period. A final count of all applications processed however was not completed until March 2000. This was the first year that applications were made available on the web, and of the total requests 3,861 were applications that were downloaded.
- 17,000 applications were left at various hardware stores throughout the County. Applications were made available at approximately 21 stores (5 Home Depot, and 13 Orchard Supply Hardware, Tri-County Water Management, California Water Conservation Solutions, and the Plumbing Bank).
- 508 Spanish language phone calls were received, resulting in 172 applications processed.
- 351 Vietnamese language phone calls were received, 179 said they saw it in the newspaper, resulting in 132 applications processed.
- 106 businesses signed up to participate in the Slow the Flow (STF), Save the Bay campaign. This resulted in 26 phone calls on the 277-2600 business phone line, 302 web downloads, and 24 STF blue slips turned in with an application indicating they received an application from a business outreach event.
- 1,027 pre-Limited Time Offer (LTO) coupons were distributed, resulting in 18 applications processed with a pre-LTO coupon attached.
- Based on the telephone calls, residents said they heard about the LTO from the following:

  - 2,518 heard about the LTO from the Newspaper,
  - 1,954 from direct mail,
  - 693 from the Val Pak coupon,
  - 617 from other sources (this includes wife, friend, contractor, plumber etc.),
  - 475 from a bus sign
  - 303 from the Slow The Flow business campaign
  - 241 from their water retailer

- 104 from the Spanish language outreach
- 20 from an event

- Public Relations: The Slow the Flow press event was attended by the San Jose Mercury Newspaper, Channel 26 and KGO radio. Later KNTV Channel 11's Consumer Guy reporter Ellis Levinson also did a feature story.

Conclusions

The Water Efficiency Program Outreach resulted in improved effectiveness of the Program, doubling its goal by providing alternatives to calling the hotline. The telephone volume was easier to manage this year because residents could pick up applications from a store location or could download the application from the website, without ever having to call the hotline number. This year there were 7,229 phone calls taken compared to14,876 phone calls last year. This year over 19,000 rebates were processed compared to over 9,000 last year. The increased volume of rebates is attributed to the publicity about the conclusion of the rebate program, and an increased level of customer service. This year, a person rather than voicemail answered all phone calls.

Multi-Family Dwelling (MFD) Outreach

For this reporting period, owners and managers of multi-family dwellings who participated in the ULFT Voucher Program were offered an additional $25 per toilet for each ULFT installed on their properties. A full-page color ad promoting the $100 per toilet voucher offer appeared in *Apartment Magazine* - a publication of the Tri-County Apartment Association (TCAA). A postcard and two direct mail fliers were mailed to all owners and managers of multi-family dwellings to solicit their participation in this program. Telemarketing efforts were ongoing for this latest offer during this period. As a TCAA Board member, the City was able to promote this program and meet directly with apartment managers. ESD staff also attended TCAA Expo to target the larger TCAA audience more directly.

Special Events

Outreach staff promoting water conservation to general residential audiences attended the following special events:

- Spring Home and Garden Show (April 7-9)
- San Jose Giants Water Awareness Night (May 12)
- Penitencia Creek Community Day (May 13)
- Corporate Earth Day events (3, week of April 17)
- City Earth Day events (2, April 29)
- Compost Bin Sale (April 1)

These forums also provided a place where Home Water Use Surveys, Washing Machine rebates, and Wastewater Paths awareness could be promoted.

Next Steps

In July 2000, the District will begin managing the outreach and administration for several of the remaining ULFT programs countywide. They will administer and promote a ULFT Distribution Program, a full-service Apartment Program,

and a full-service and fee-for-service Commercial, Industrial, Institutional ULFT program.

Without the ULFT rebate program, outreach for this dry weather period will be focused on indoor leak detection and repairs, specifically the replacement of defective toilet flapper valves in homes and apartments.

ESD is working cooperatively with the District to enhance and support a water conservation/leak detection campaign that is to start in early July. ESD plans on extending the length of the campaign through the end of the dry weather period. There are also plans to increase the amount of print and broadcast advertising purchased, provide appropriate collateral materials, offer garbage bill inserts, include information on our web site, attend community events, offer incentives to targeted audiences, and provide additional tactics that address the Vietnamese and Spanish-speaking audiences.

V-B POLLUTANT REDUCTION OUTREACH

This section of the *Clean Bay Strategy* Report features highlights and assessment of the City's pollutant reduction outreach activities. These activities include regional coordination and collaboration efforts, targeted outreach to schools, the tours program used for all audiences, and the Industrial User Academy.

V-B1 REGIONAL OUTREACH

City Staff participated on a committee to select a contractor to coordinate delivery of watershed management and urban runoff messages. The contractor will be tasked with designing a three-year workplan, and implementing the first year of the plan. Selection of this contractor concludes the development of a strategy that addressed the shared elements of watershed management and urban runoff public education. Since these two activities have much in common, development of a common strategy offered opportunities including:

- Reduction of unnecessarily duplicative public education efforts by water agencies in the Santa Clara Valley, and
- Reduction of public education costs by sharing the expense of projects that deliver related messages to the same audiences.

The effort also represents a successful "collaboration" between wastewater, stormwater, and water supply agencies that operated, and paid for, completely independent public education efforts to the same audiences in the very recent past.

As part of the Watershed Grants Program, Youth Watershed Education Grants promote understanding and stewardship of the Santa Clara Basin Watershed among South Bay youth (in grades K-12) by supporting innovative projects for youth education, curriculum development, adoption and implementation of published watershed-based curricula, and teacher/youth training. Over the first year, $47,500 in grants were awarded to 15 educational programs, impacting over 11,000 students. In June 2000, the City held a Youth Watershed Education Grant Forum as an opportunity for grantees to present project progress, talk

with colleagues, and meet with grant review committee members. About 60 people, including San Jose City Council Member Charlotte Powers, attended this successful event.

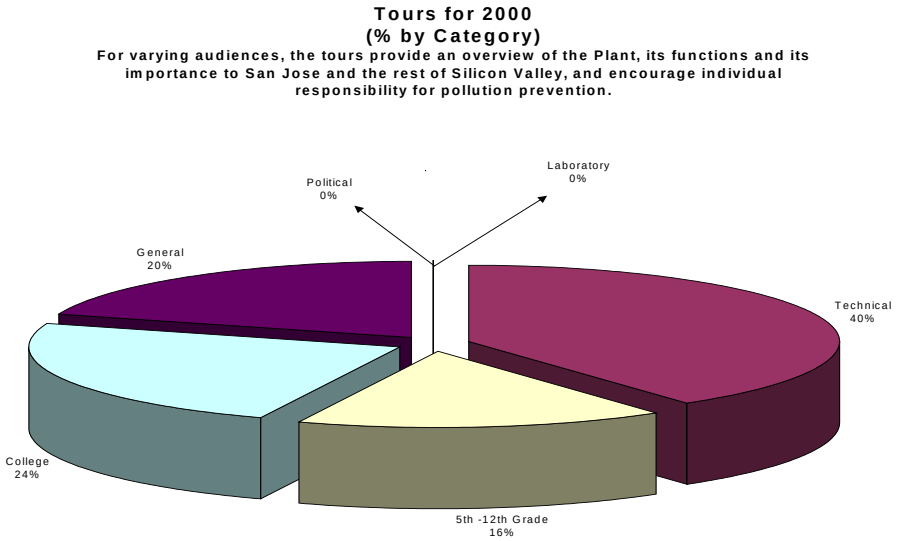
V-B2 GENERAL OUTREACH

The General audience includes all residents. The City delivers its messages to this audience through participation in regional- and City-sponsored activities that include tours, events, ads and outreach campaigns, and a residential web site. While an update on Plant tours is presented below, please refer to Appendix E for an update on the other activities.

Plant Tours

Tours have been used by different divisions of ESD to highlight the importance of pollution prevention, discuss the need for residential and commercial water conservation, and instruct students on the process of wastewater treatment. As a mechanism to link the result of an action (i.e. dumping hazardous materials or too much water down the drain) to a place (i.e. the Plant and the Bay), tours have become an effective method to reach various audiences with this important message.

During the last six months, Plant tours were given to 25 groups, representing about 480 people. The audiences are broken down in the chart below.



V-B3 TARGETED OUTREACH

The City delivers its outreach messages to targeted audiences using events, website, tours, and presentations.

School and Youth Outreach

School Programs for the reporting period stressed storm drain pollution prevention to protects our creeks, the critical nature of the protection the Plant provides for the Bay, water conservation, and the value of recycled water.

Water Awareness Program

One of the programs delivering watershed messages over the last four years is the Water Awareness Program. During the last six months City Park Rangers gave water awareness presentations to 50 classes, grades 3-7, addressing more than 1300 San Jose students. During fall 1999 presentations, pre and post-tests were administered to six 5th grade classes and three 6th grade classes to determine the effectiveness of this educational tactic. Additional test results from one local science magnet school, Hacienda, were excluded because their very high pre and post scores would skew average results. The average change in awareness due to the presentations is shown below for one of the measured concepts. Changes in the program will be made based on the results of the survey. Maintenance of this testing is planned to continually improve this program's effectiveness.

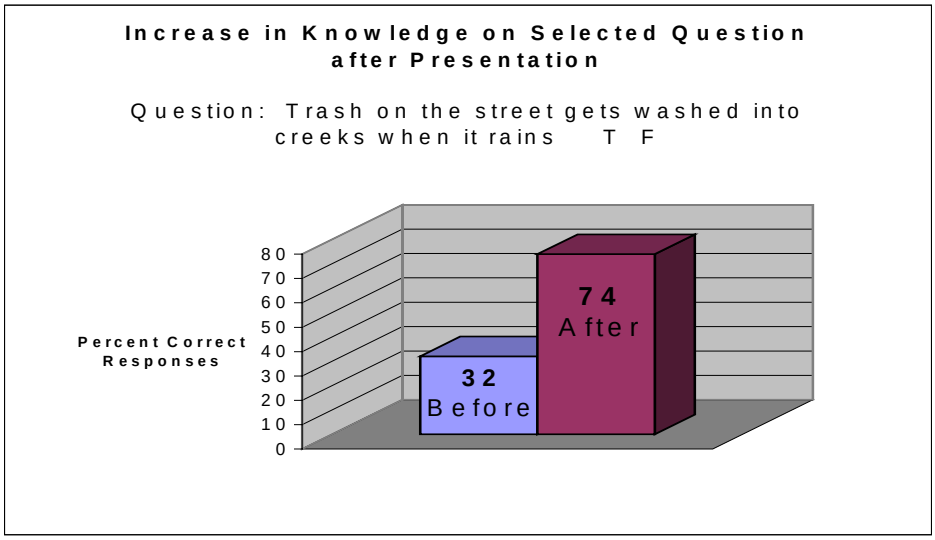
V-B4 COMMERCIAL AND INDUSTRIAL OUTREACH

The City delivers its outreach messages to commercial and industrial audiences using an IU newsletter, events, its website, tours, and speaking engagements, and its IU Academy. While an update on the IU Academy is presented below, please refer to Appendix E for an update on the other activities.

Industrial User (IU) Academy

During this reporting period, the City held the IU Academy class "Pretreatment Program for Permitted Industrial Users" twice. Forty-six people from thirty-four companies and two cities attended.

Surveys conducted in the classes indicate that participants are learning more about the pretreatment program through this class. The following graphs show the self-assessed increase in knowledge of participants on particular topics from before and after the May 11&12 session of the Academy.



Appendix A

The *Clean Bay Strategy* Timeline

Appendix B

Flow Audit Study Summary Report

The above report is available upon request. For a copy call (408) 945-3000. It is also available through ESD's web page at:
http://www.ci.san-jose.ca.us/esd/pub_res.htm

Appendix C

Headworks Loading Analysis Study Report

Appendix D

Selected Organics Source Investigation Report

Appendix E

Outreach Activities for January – June 2000