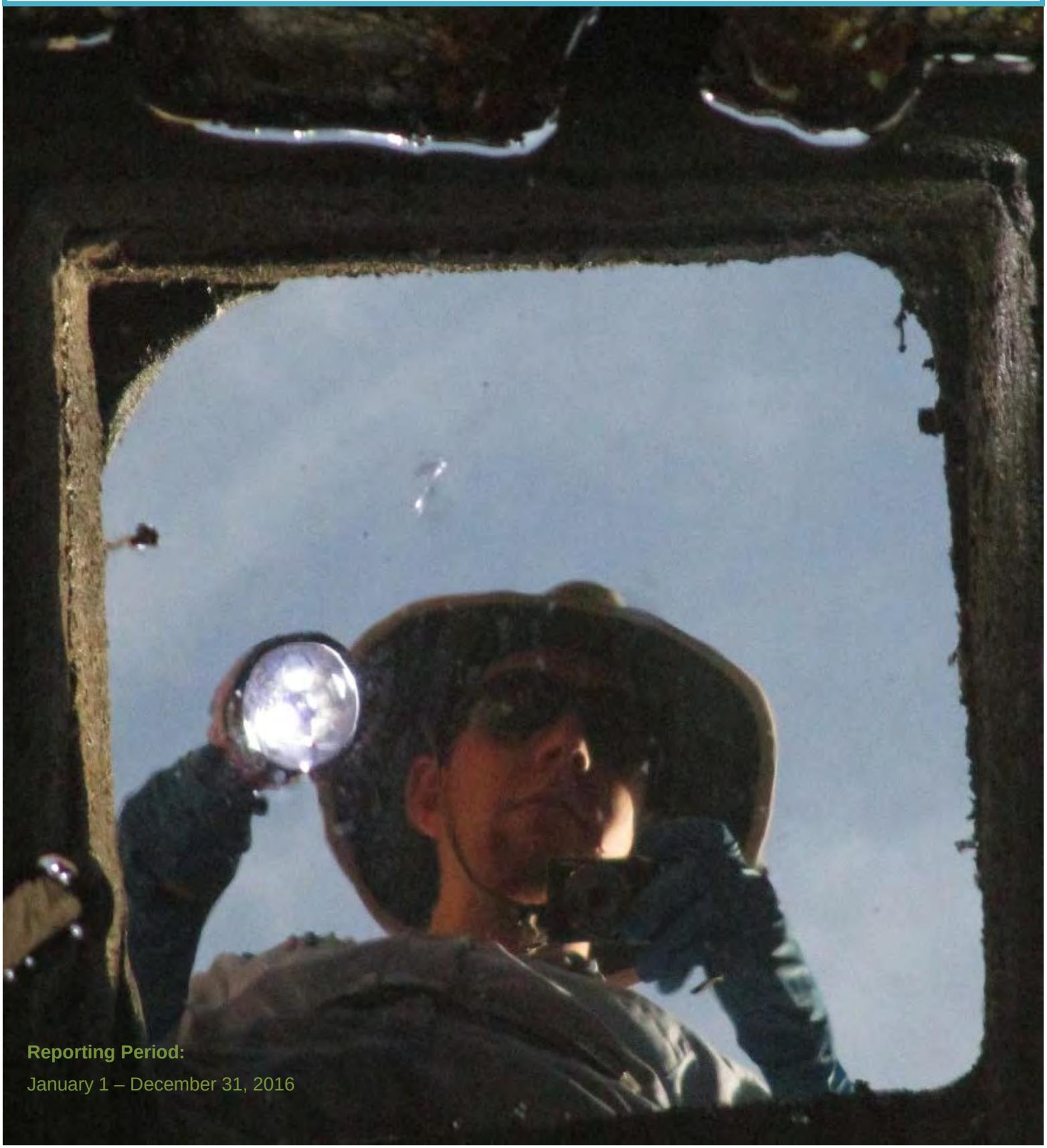
San José-Santa Clara Regional Wastewater Facility

2016

Pollution Prevention (P2) Annual Report



Reporting Period:

January 1 – December 31, 2016

San José-Santa Clara Regional Wastewater Facility
2016 Pollution Prevention Annual Report

San José-Santa Clara Regional Wastewater Facility Annual Reports are posted on the City of San Jose website at: http://www.sanjoseca.gov/regulatoryreports

San José-Santa Clara Regional Wastewater Facility

This report summarizes the past year of Pollution Prevention (P2) activities within the San José – Santa Clara Regional Wastewater Facility collection area. A description of the facility, its service area, and the process for selecting pollutants of concern is provided. Subsequent sections summarize activities, accomplisments, and outreach efforts over the past year that were aimed at minimizing those pollutants.

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On the cover: Environmental Inspector, Chris Smelser, peers into his reflection as he inspects a grease interceptor sample box.

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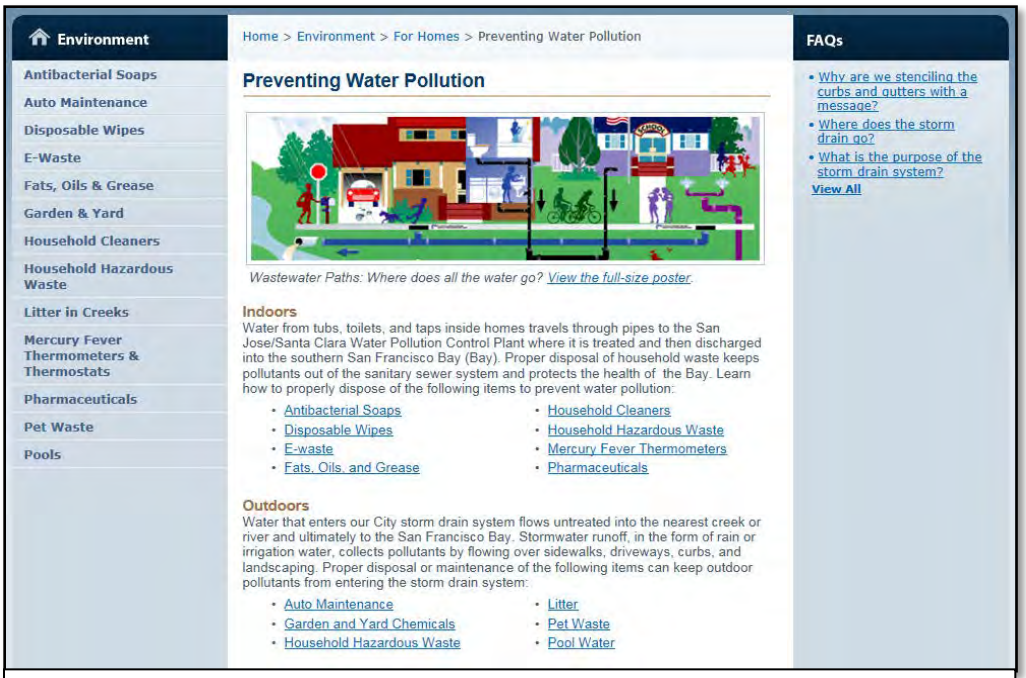


City of San Jose web page raising homeowner awareness about P2 issues. http://sanjoseca.gov/index.aspx?nid=1427

REGULATORY REQUIREMENT

The Annual Pollutant Minimization Report (also known as the Pollution Prevention, or "P2" Report) for San José-Santa Clara Regional Wastwater Facility (also referred to as "the Facility" or "SJ-SC RWF") is prepared in accordance with NPDES Permit Number CA-0037842, Water Board Number R2-2014-0034.

Permit provision VI. C. 3. b. establishes requirements for an annual report that shall be submitted by February 28th each year:

i. **Brief description of treatment plant**, including service area and treatment process.

ii. **Discussion of current pollutants of concern** and reasons for choosing the pollutants.

iii. **Identification of sources for pollutants of concern** including methods for identifying and estimating sources to include sources not within discharger's control, such as pollutants in potable water supply and air deposition.

iv. **Identification of tasks to reduce the sources of pollutants of concern.** The discussion shall prioritize tasks and provide implementation timelines. Participation in group, regional, or national tasks that address pollutants of concern is encouraged.

v. **Outreach to employees.** Discharger shall inform employees about pollutants of concern, potential sources, & how they might help reduce discharge to the facility.

vi. **Continuation of Public Outreach Program.** Discharger shall prepare a pollution prevention public outreach program for its service area. Outreach may include participation in community events, school outreach, plant tours, news articles, newsletters, radio or television stories, advertisements, utility bill inserts, or web sites.

vii. **Discussion of criteria used to measure Pollutant Minimization Program task effectiveness.** Discharger shall establish criteria to evaluate the effectiveness of the Pollution Minimization Program. Discussion shall identify criteria used to measure effectiveness of tasks in items iii. iv. v. and vi above.

viii. **Documentation of efforts and progress.** Discussion of all Pollutant Minimization Program activities during the year.

ix. **Evaluation of Pollutant Minimization Program & task effectiveness** based on criteria developed in vii above.

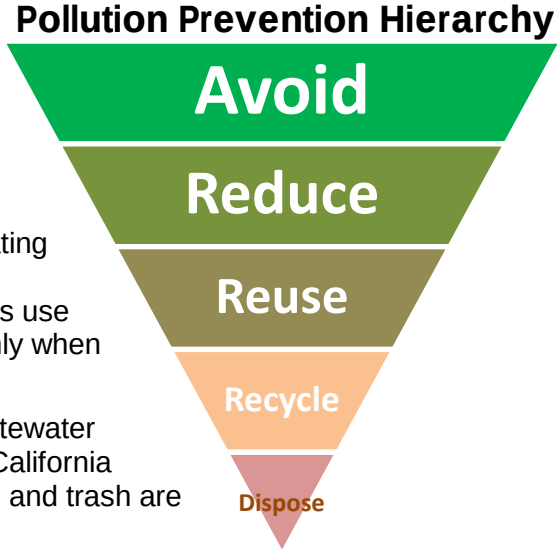
x. **Identification of specific tasks and timelines for future efforts.** Discharger shall explain how it intends to continue or change tasks to more effectively reduce the amount of pollutants flowing to the facility and into effluent.

This report summarizes pollution prevention activities during the period from January 1, 2016 to December 31, 2016.

INTRODUCTION

What is P2?

Pollution Prevention (P2) aims to reduce or eliminate waste at the source instead of managing and paying to dispose of waste after it has been generated. The basic strategy is common sense application of the "P2 Hierarchy:" Avoid, Reduce, Reuse, Recycle, before you dispose.



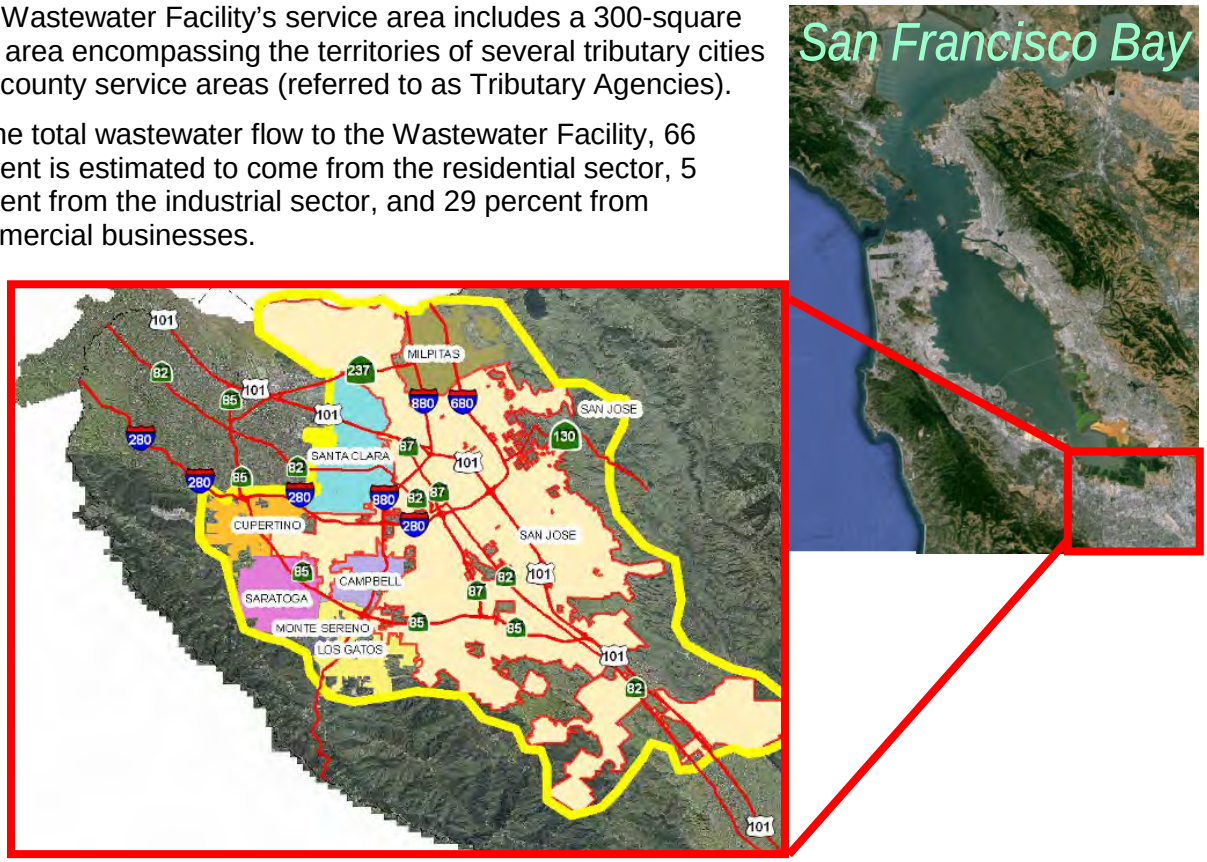
It is cheaper and easier to control pollution by not generating it in the first place. Avoid products that result in waste or pollution. If use of a product cannot be avoided, reduce its use and reuse as much as possible. Recycle and dispose only when necessary.

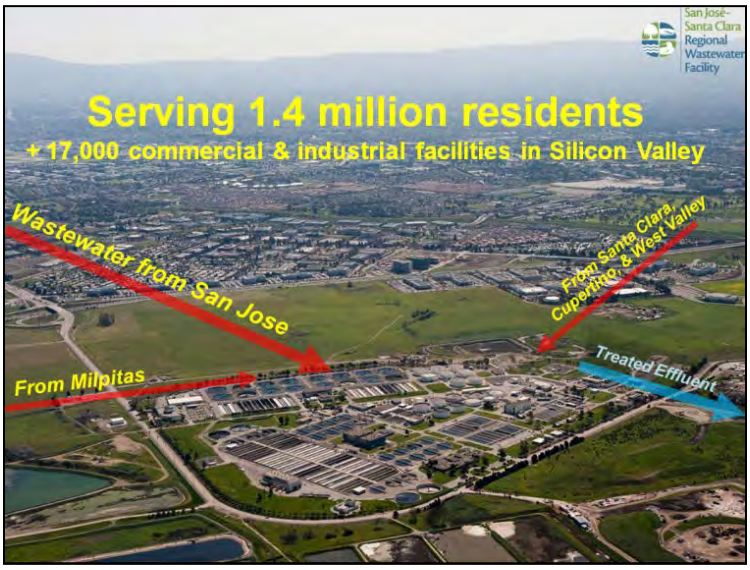
The state-of-the-art San Jose-Santa Clara Regional Wastewater Facility discharges the cleanest wastewater in Northern California but, costs of wastewater treatment increase as pollutants and trash are added to the sanitary sewer system.

SERVICE AREA DESCRIPTION

The Wastewater Facility's service area includes a 300-square mile area encompassing the territories of several tributary cities and county service areas (referred to as Tributary Agencies).

Of the total wastewater flow to the Wastewater Facility, 66 percent is estimated to come from the residential sector, 5 percent from the industrial sector, and 29 percent from commercial businesses.





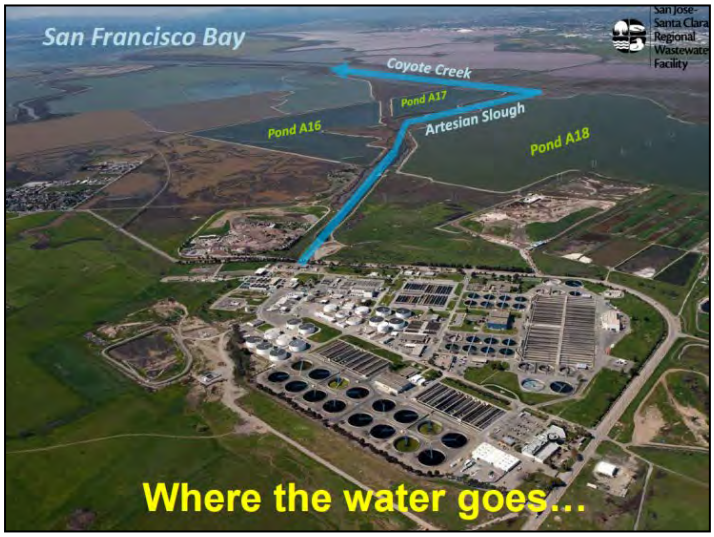
WASTEWATER FACILITY OVERVIEW

The San José-Santa Clara Regional Wastewater Facility is located at 700 Los Esteros Road, in San Jose. Roughly 100 million gallons per day of sewage flows in and receives 8 to 10 hours of advanced treatment. Some treated wastewater is recycled. The majority flows out into Artesian Slough and Lower Coyote Creek. Recent and ongoing studies of fish, phytoplankton, and invertebrates indicate that the waters immediately downstream of the SJ-SC RWF support the most dense diverse populations of fish and estuarine invertebrates (See SJ-SC RWF Annual Self-Monitoring Report: http://www.sanjoseca.gov/regulatoryreports, which emphasizes both responsibility and credit for the facility's past and ongoing ability to treat wastewater to the highest level of purity.

The facility began service to the cities of San Jose and Santa Clara in 1956. Through the 1960s and 1970s additional cities and county sanitation districts tied into the SJ-SC RWF and population grew. The original facility provided no more than screening, grit removal, and primary sedimentation. In 1964, secondary Return Activated Sludge aeration basins were added to remove a substantial amount of organic material. A disinfection system became operational in March 1971. Nitrification basins and a filtration facility went into service in 1979 to remove ammonia and particulate matter. Starting in 1997, secondary and nitrification aeration basins were reconfigured to perform Biological Nutrient Removal (BNR) to reduce discharged loads of nitrogen, phosphorus, and copper.

Today, the facility stands as the largest and most advanced wastewater treatment plant in the San Francisco Bay area. It receives wastewater from roughly 1.4 million residents and more than 17,000 commercial and industrial facilities, including 228 permitted industrial users (IUs) in the following cities and districts:

- San José,
- Santa Clara,
- Milpitas,
- Cupertino Sanitary District,
- County Sanitation Districts 2-3,
- Burbank Sanitary District, and
- West Valley Sanitation District (serving Campbell, Los Gatos, Monte Sereno, and Saratoga).



Reasons for Choosing Pollutants

A pollutant of concern is any toxic or undesirable substance that passes through the SJ-SC RWF or otherwise imposes an undesirable operational costs.

Tier 1: Any discharged substance that exceeds an NPDES permit limit is a pollutant of concern. Fortunately, the SC-SJ RWF has not discharged any pollutant from treated wastewater at concentration that poses a threat of permit violation for at least a decade.

Tier 2: A secondary level of concern is for substances, even though treated and discharged at concentrations that meet permit limits, still exceed, or threaten to exceed, water quality objectives in the Bay. Pollutants in this category generally include those for which a Total Maximum Daily Load (TMDL) has been published. Water quality objectives are established in the San Francisco Bay Regional Basin Plan for U.S. EPA listed priority pollutants (e.g. mercury, copper, cyanide, some pesticides, and PCBs).

Tier 3: A third tier of pollutants are those that add cost, difficulty, or could potentially upset facility or collection system operations. These include fats, oils, and grease (FOG) that clogs pipes and fills bar screens.

Tier 4: The last category is "Emerging Contaminants: pollutants not listed by Basin Plan or as EPA priority pollutants, but are present in wastewater. These include plastics, pesticides, and pharmaceuticals that can be detected at concentrations not yet identified as causing harm to aquatic organisms but for which research and control strategies appear to be prudent.

Identification of Pollutant Sources

Sector Load Studies and Trunkline Monitoring. Sector Load Studies are periodically performed to characterize wastewater arriving to the facility from industrial, commercial and residential sources. The last sector load study was completed in 2014.

When a specific source of pollutants is suspected, a Source Control Team, under the SJ-SC RWF Pretreatment Program, performs collection system surveillance monitoring to investigate sources of specific pollutants detected in facility influent or in trunklines. Sewer source investigations are expensive and labor intensive. In practice, these efforts have usually focused on metals, such as copper, nickel, and mercury. But, any persistent pollutant, detected at high enough concentration, could be tracked in this manner.

Source Control Team deploying a sampler.

Influent, Effluent and Sludge Monitoring. EPA priority pollutants are monitored at least semiannually at facility influent, effluent and Biosolids sludge. Detailed results of these sampling events are published in Annual and Semi-annual Industrial User Pretreatment Compliance Reports which are posted on the City of San Jose, Environmental Services Department website at: http://www.sanjoseca.gov/regulatoryreports Much of this same information is summarized in Regional Wastewater Facility Annual Self-Monitoring Reports which can also be found at the same web address.

Pollutants and their sources:

Pollutant	Rationale	Source, or potential source
Mercury	TMDL	Dental amalgam waste, thermometers, thermostats, compact fluorescent light bulbs.
PCBs	TMDL	Dielectric fluid in transformers built prior to 1978. Building caulking and some roofing materials from pre-1980s construction.
Copper	Permit Action Plan	Copper plumbing, pool and spa maintenance, vehicle service facilities
Cyanide	Permit Action Plan	Industrial users, and always a very small concentration that is a byproduct of chlorine disinfection
Pesticides	TMDL & Emerging Contaminants	Residential ant and spider control, and potentially professional pesticide operators
Fats, Oils, and Grease	Operational Impact	Kitchen waste from restaurants and residents
Pharmaceuticals	Emerging Contaminants	Residential or hospice disposal in the toilet. Some pharmaceuticals, such as albuterol, oflaxacin, fluoxitine (Prozac)carbamezepine, and some antibiotics are excreted by human users at low concentrations that still pass through the treatment facility, and into the Bay.
Microplastics	Emerging Contaminants	Beads in facial scrubs, toothpastes and personal care products. Fibers from clothing.

FOG and Sewer Investigations. The SJ-SC RWF maintains a team of 9 inspectors and assistant inspectors who investigate collection system problems. This team performs routine inspections of interceptors and grease traps at food service establishments to ensure the devices are installed and maintained. The team also investigates sewer blockages, whether caused by Fats, Oil, and Grease (FOG) or other material, and recommends corrective actions.

Special Studies. The San José-Santa Clara Regional Wastewater Facility serves the largest population and one of the most economically diverse service areas in the San Francisco Bay Area. For this reason, the facility has historically conducted, or supported, numerous scientific studies to identify potential pollutants and their sources. The SJ-SC RWF currently supports research and provides samples to projects coordinated by the San Francisco Estuary Institute and Regional Monitoring Program. The goal is to identify pollutant problems that may pass through the wastewater facility and into the Bay, before they result in ecological problems.

IDENTIFICATION OF TASKS TO REDUCE SOURCES OF POLLUTANTS

Monitoring. Sample results from influent and effluent monitoring and collection system sampling are the first indication that a pollutant is present and the extent to which the treatment process is able to adequately treat it. Monitoring can also provide some clues that indicate pollutant source and in-turn likely tasks to reduce it at the source.

Regional Collaboration. Pollutants of concern to the SJ-SC RWF are fairly common to many wastewater treatment agencies. The SJ-SC RWF is a founding member and one of five principal member of the Bay Area Clean Water Agencies (BACWA). The facility also participates in leadership roles with San Francisco Estuary Institute (SFEI) and the Regional Monitoring Program (RMP). Ideas for reducing pollutants are often generated by collaborating with other facilities through those venues. Specific tasks are ground-truthed within our own service area by surveying residents, commercial and industrial businesses, hospitals, government agencies, and retail stores, as appropriate.

BMPs. Very often, industry guidelines, in the form of Best Management Practices (BMPs) have already been generated by industrial trade groups or agencies under EPA. Local collaboration though Bay Area Pollution Prevention Group (BAPPG - a BACWA committee), serves as the local clearinghouse that has developed or vetted BMPs best suited for Bay Area needs.

Outreach. Outreach to business leaders and members of the public usually inform them of practices that reduce pollutants at the source. BMPs and guidelines are usually developed or refined by reviewing and testing them at the source of the pollutant.

CRITERIA TO MEASURE P2 PROGRAM TASK EFFECTIVENESS

Measuring actual effectiveness of P2 efforts is challenging. For some very low concentration pollutant, no single metric may work. Measures are listed below from most effective to least.

Influent and Biosolid Monitoring. The SJ-SC RWF, applying secondary Biological Nutrient Removal (BNR) and gravity filtration processes, arguably produces the cleanest effluent in Northern California. Comparisons of influent and effluent pollutant concentrations are published in facility Annual Self-Monitoring Reports and Industrial User Pretreatment reports. The treatment process is effective at keeping effluent pollutant levels low and unaffected by minor changes in influent concentrations. Influent monitoring focuses investigation on waste streams more likely to identify pollutants in need of pollution prevention measures.

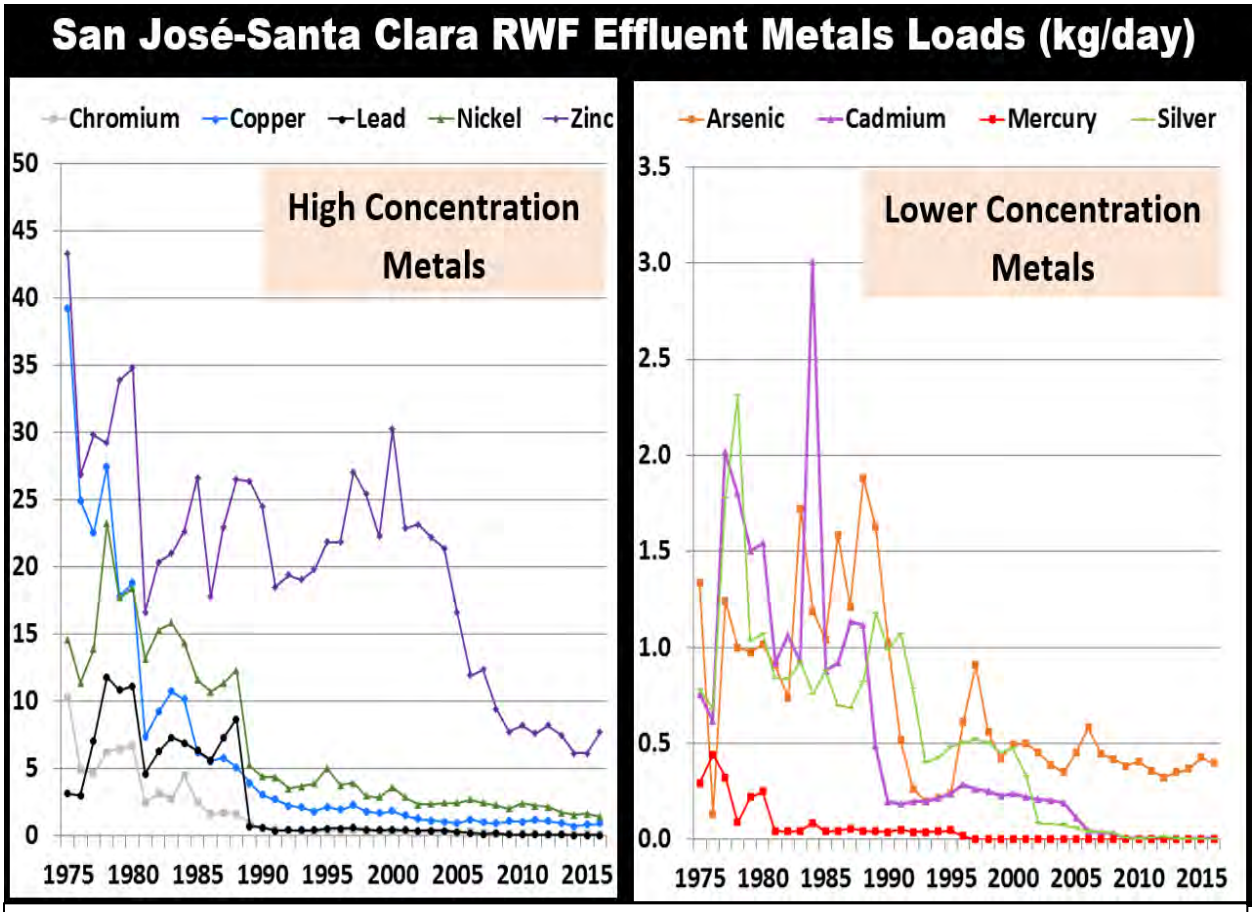
Influent monitoring, performed at facility headworks provides long-term trends to show if a given pollutant concentration is increasing or decreasing. Over the past two decades, considerable reductions in all metals and tributyltin have been measured in influent, for example. Some of these reductions have been the result of industrial source control and product bans on tributyltin and copper sulfate root control agents.

Most pollutants removed in primary, secondary/BNR, or filtration processes end up in Biosolids sludge, so this is the other logical place for monitoring. Metals concentrations in Biosolids have also dropped in recent decades, particularly for lead, silver, and zinc, as overall loads to the facility have decreased. However, Biosolids concentrations cannot be compared to short-term influent and effluent results. The SJ-SC RWF employs a 3-week digestion process and 3-to-5-year dewatering process for Biosolids. Thus, Biosolids sampled on any given day actually represent materials from wastewater that passed through the plant years before.

Inspections of commercial and industrial facilities. The numbers of inspections and percent of facilities in compliance with local discharge regulations is the next measure of P2 program effectiveness. Inspection compliance provides only an indication, and only for those pollutants discharged by the inspected business or industry.

Households utilizing Household Hazardous Waste (HHW) services and quantity of material collected as (HHW). When pounds or gallons of material of hazardous substances, such as mercury in thermometers, unwanted pharmaceuticals, or kitchen grease, is collected, it is presumed that this represents material that may have otherwise been disposed down a drain or toilet. This presumption cannot be verified. On the other hand, HHW collection events highlight and advertise concerns about toilet disposal of these materials.

Numbers of people at outreach events, BMP brochures distributed, radio and television ads. Outreach that communicates P2 messages can be vitally important for the overall pollution prevention effort. The number of people attending outreach events, including outreach to employees, is indicates that people were messaged. However, simply counting the number of messages that were broadcast tells very little about the effectiveness of the program. Effective messaging is often non-specific. The most effective advertising aims at selling a vision or emotion, not a list of do's and don'ts. Literal counts of messaging materials and activities give a sense of the size of the program, but not necessarily the effectiveness.



All metals loads have dropped: A source control program in combination with wastewater treatment plant improvements resulted in dramatic reductions in metals loads discharged to the Bay since the 1970s.

MERCURY & PCBS

Mercury and Polychlorinated Biphenyls (PCBs) are legacy pollutants for which TMDLs were developed and a Watershed Permit established limits. The Mercury Watershed Permit was implemented in 2008. Regional Board Order No. R2-2011-0012 amended the permit to add PCBs waste discharge requirements. The Mercury and PCBs Watershed Permit establishes mercury and PCBs limits and pollution prevention triggers for the San José-Santa Clara Regional Wastewater Facility.

Mercury

Mercury is one of a small group of heavy elements that is only toxic in a biological setting. The SJ-SC RWF does a very good job removing this pollutant from wastewater down to part-per-trillion concentrations, but there is still room for reduction.

In 2016, concentrations of mercury in wastewater facility effluent were again around 10% of the mercury concentration limits and triggers set in the Watershed Permit.

Mercury Watershed Permit Limits and Results	Annual Limit (kg/yr)	Monthly Limit (µg/L)	Weekly Limit (µg/L)	Daily Trigger (µg/L)
Average Effluent Limits	0.800	0.025	0.027	
Triggers for Advanced Secondary Plants		0.011		**0.021**
2016 Maximum Results	0.131	0.00145	0.00145	0.00145

Mercury Sources. Mercury is a legacy pollutant in the Guadalupe River watershed and in the Bay. In the mid-1800s, liquid mercury (quicksilver) was widely used in gold mining operations. The New Almaden Mine located in the South Bay was once the largest producer of mercury in North America that provided quicksilver for gold mines. However, the main identifiable source of mercury discharged to the sanitary sewer system today is from dental amalgam and dental practices. Lesser potential sources include old-style mercury thermometers and fluorescent light bulbs, assuming these items are broken and discharged to a toilet or drain.

In the past, dental procedures were the largest source of mercury to the Wastewater Facility. More recent sampling shows residential sources are now the largest contributor. This is likely due to installation of amalgam separators at all dental practices that remove and replace amalgam restorations. The most recent sector loading study, completed in 2014, determined the percentage of mercury loads discharged to the SJ-SC RWF collection systems as 49% from residential, 38% from dental practices, 12% from other commercial sources, and 1% from industrial sources.

Dental Mercury Amalgam Program. Wastewater compliance by dental practices is monitored through the SJ-SC RWF Dental Amalgam Program. Implementation of a dental permitting and amalgam separator inspections began in 2009. Dental permits are reissued on a five-year

cycle. There are currently 820 permitted dental practices in the program. This represents 99 percent participation rate by identified practices. The Dental Amalgam Program issued 37 new permits to dentists in the Tributary area in 2016.

Dental Amalgam Program Permits Issued					
	2012	2013	2014	2015	2016
Total Issued	862	867	875	828	820
New permits	27	24	27	34	37

Permit holders are inspected for compliance at least once per five-year permit cycle. Requirements include installation of an amalgam separator, implementation of dental amalgam Best Management Practices (BMPs), and annual report submission. Certifications of amalgam separator installation and BMP implementation have been received from 95% of dental practices. In 2016, 100% of annual report submissions were received on time, in part, due to increased enforcement against late reports. Dental Amalgam Program Annual Report Forms, BMPs, and amalgam separator certifications are available for download on the City of San Jose website: http://www.sanjoseca.gov/index.aspx?NID=2327

Inspections in 2016 verified that amalgam separators were installed at over 99% of practices. The remaining 1% represents newly identified dental facilities. The program identified 239 violations by dental practices in 2016. The majority of these were late reports or amalgam separator maintenance infractions. All violations were enforced and resolved.

Permanent San Jose Household Hazardous Waste (HHW) facility. San Jose's new permanent HHW facility began operations in September 2014. In June 2015, San Jose and several participating tributary area cities signed funding and participation agreements that commit to operating the facility to serve area residents and small businesses. The permanent facility now provides pollution prevention outreach and collections year-round and in conjunction with holidays and special events.

The HHW facility receives all manner of HHW materials by appointment and free of charge for local participating residents most Fridays and Saturdays throughout the year. Mercury containing waste items, like fluorescent bulbs, thermostats, and thermometers are an important part of the collected material and outreach efforts performed by this facility. The facility also serves conditionally exempt, small quantity generators (small businesses).

The Bottom Line: The facility continues to remove 98 to 99 percent of mercury from wastewater. More importantly, total mercury load discharged to the sewer collection system appears to have fallen to almost one third its previous level in less than 15 years! Most of the reduction is believed to be a result of changes in dental industry.

Brian Fontes inspecting a dental amalgam separator.

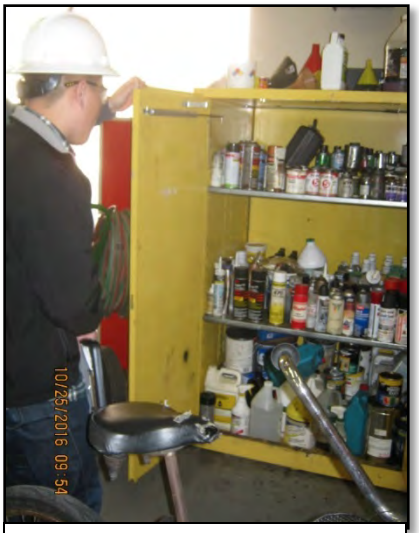
Mercury Prevention Plan		
Program	**Implementation & Timeline**	**Evaluation**
Dental Amalgam Program Issue Dental Wastewater Discharge Permits to dental facilities.	Continue to track the following: ▪ Number of permits issued. ▪ Percent of practices with installed amalgam separators & following BMPs. ▪ Percent of offices inspected.	By end of 2016, a total of 820 permits were active. Issued new permits to 37 practices. 95% of practices certified for amalgam separators and are following Dental Amalgam BMPs. Completed 3% dental office inspections in 2016.
County of Santa Clara HHW. County Department of Environmental Health (DEH) Household and Small Business Hazardous Waste program.	Continue support of the County Household and Small Business Hazardous Waste Program. ▪ Contract arrangement with County sets minimum level of service of at least four collection events per month. ▪ Amount of material collected over the year.	County HHW hosted 8 temporary and 142 permanent hazardous waste drop-off events for households and conditionally exempt, small quantity generators. County program also served 453 small business drop-offs including local governments, Goodwill Industries, and Salvation Army. In FY 15-16, HHW program recycled: 375 pounds of elemental mercury, 131,116 pounds of fluorescent lights, and 182,028 pounds of household batteries.
Dental Practice BMPs maintained on San Jose web site: **- Dental Amalgam Program: http://www.sanjoseca.gov/index.aspx?NID=2327** **- BAPPG approved amalgam separators: http://www.sanjoseca.gov/ArchiveCenter/ViewFile/Item/1466**		

PCBs

Order No. R2-2012-0096, the re-issued Mercury and PCBs Watershed Permit, was adopted by the Regional Board in December 2012. The re-issued permit includes general language regarding evaluation and proposed control measures of identified controllable sources of Polychlorinated Biphenyls (PCBs) or mercury.

Pretreatment PCBs Control Program.
The Pretreatment Program evaluates Industrial Users (IUs) every five years as part of the wastewater discharge permitting process. The permitting process requires IUs to disclose any Total Toxic Organics (TTOs) maintained onsite, including PCBs. The Pretreatment Program samples for TTOs, including PCBs, if TTOs are known or suspected based on federal regulations. If TTOs are known or suspected to be present at an IU facility, the Pretreatment Program requires the IU to either conduct analysis for TTOs, or certify that a plan is in place to manage TTOs to prevent discharge to the sanitary sewer.

PCBs Pollution Prevention Plan – 2016 Evaluation.
No PCBs have been detected at industrial facilities for well over a decade. PCBs are not detected in the SJ-SC RWF influent or effluent using standard detection methods (Method 608).



Inspector Andrew Luong checking a flammable storage locker.

COPPER & CYANIDE

Copper and cyanide are pollutants for which Basin Plan Amendments (BPAs) for the Bay have been established.

A 2009 BPA replaced previous copper and nickel action plans with a Bay-wide Copper Management Strategy (CMS). This strategy removed requirements that the Facility monitor copper and nickel in the Lower South Bay (LSB). The BPA also removed nickel as a pollutant of concern. The maximum daily and average monthly allowable concentrations of copper that may be discharged from this facility are: 19 and 11 µg/L, respectively.

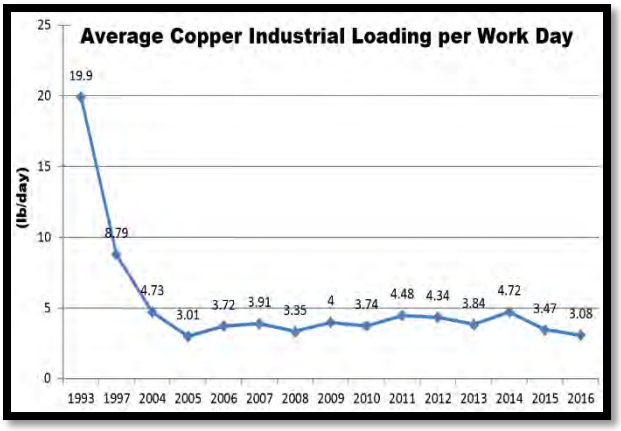
In 2008, a Cyanide BPA and implementation strategy for San Francisco Bay was approved. The BPA established a cyanide chronic SSO of 2.9 µg/L (4-day average) for San Francisco Bay and a dilution credit of 3:1 (dilution of 2X) for the SJ-SC Wastewater Facility. The Facility's maximum daily and average monthly cyanide limits are 13 and 5.7 µg/L, respectively.

Copper Control Program. Wastewater Facility Permit Provision VI.C.5.c. "Copper Action Plan," requires the Facility to implement a copper control program. The following provisions have been incorporated in the Copper Pollution Prevention Plan below:

Copper Action Plan
1: Review potential sources of copper. 2: Implement Copper Control Program … to reduce copper sources identified in Task 1. The plan shall consists, at a minimum, of the following elements: a. Provide education and outreach to the public (e.g., focus on proper pool and spa maintenance and plumbers' roles in reducing corrosion); b. If corrosion is determined to be a significant copper source, work cooperatively with local water purveyors to reduce and control water corrosivity, as appropriate, and … c. Educate plumbers, designers, and maintenance contractors for pools and spas to encourage best management practices that minimize copper discharges.

Copper Sources. The Sector Loading Study in 2014 confirmed that roughly 57% of copper in wastewater was originating from residential sectors. Commercial businesses collectively discharge about 33% of the entire copper load, and industry is responsible for only 10%.

Copper Industrial Loading. Until the 1990s, industry contributed a third of total copper load arriving at the SJ-SC RWF. Between 1993 and 2004, industrial copper fell to less than a quarter of its previous average daily load. SJ-SC RWF Source Control Program inspectors continue to inspect and monitor for high concentration copper discharges from metal finishers & printed circuit board manufacturers. Inspectors also distribute the BMP, "Guidelines for Industrial Wastewater Reuse" and "Guidelines for Efficient Water Use" as opportunities arise.



Copper in source water. The majority of the copper load that persists in wastewater today comes from the slow corrosion of copper pipe in homes and businesses. This remaining load is small and does not pose a threat to receiving waters given the effectiveness of the SJ-SC RWF at copper removal. In the SJ-SC RWF service area, the main water wholesaler is the Santa Clara Valley Water District. The District operates in accordance with EPA's Lead and Copper Rule (LCR) by adding orthophosphate inhibitor to control pipe corrosion. The SJ-SC RWF Source Control team routinely contacts the Water District if overall sanitary sewage copper concentrations appear to be rising unexpectedly.

The Bottom Line: SJ-SC RWF removes copper very well. Copper removal was enhanced in 1979, with addition of the filtration process that removes particulate copper, and enhanced again in 1998, with conversion of secondary process to Biological Nutrient Removal (BNR). Today, the facility removes 98 percent of wastewater copper.

Copper Prevention Plan		
Message / Program	**Implementation & Timeline**	**Evaluation**
Copper Pipe. Educate plumbers, designers, and contractors for pools, spas, HVAC systems, and general plumbing on BMPs to minimize copper pipe corrosion.	Maintain copper pipe factsheet. BAPPG to communicate copper pipe corrosion message to plumbing unions, contractors, building inspectors, and colleges.	BAPPG outreach training to 15 students at Laney College in 2016. Disconnect between BMPs and accepted practice in discovered in 2013: BMPs under review.
Industrial Waste. Distribute BMPs to industrial metal finishers & printed circuit board manufacturers.	Distribution of Guidelines for Industrial Wastewater Reuse by City website and at Industrial User Academy events.	An Industrial User Academy event was held in 2016. Control guidelines for metals bearing wastes was distributed to 31 participants.
Pools & Fountains. Provide outreach to homeowners on pool and spa maintenance and plumbers' roles in reducing corrosion.	Track numbers of brochures distributed each year	Inspectors distributed 21 brochures in 2016.
SJ-SC RWF. Wastewater Facility influent and effluent copper.	Monitor copper in wastewater facility influent & effluent monthly.	Copper concentration in Facility effluent rose slightly to 3.03 ug/l.
Copper BMPs maintained on San Jose web site: **- Cooling Towers:** http://www.sanjoseca.gov/index.aspx?NID=2286 **- Roof Runoff Factsheet:** https://www.sanjoseca.gov/Archive/ViewFile/Item/1460 **- Draining Pools and Spas brochure:** http://www.sanjoseca.gov/ArchiveCenter/ViewFile/Item/1469 **- Pools:** http://www.sanjoseca.gov/index.aspx?nid=1629 **- Car Washing brochure:** http://www.sanjoseca.gov/ArchiveCenter/ViewFile/Item/1462		

Cyanide

Cyanide Control Program. Wastewater Facility Permit Provision VI.C.5.d. "Cyanide Action Plan," requires implementation of a cyanide control program:

Cyanide Action Plan
1. Review Potential Cyanide Sources. 2. Implement Cyanide Control Program. The Discharger shall continue to implement its program to minimize cyanide discharges to the Facility consisting, at a minimum, of the following elements: a. Inspect each potential contributor to assess the need to include that contributing source in the control program. b. Inspect contributing sources included in the control program annually. Inspection elements may be based on USEPA guidance, such as Industrial User Inspection and Sampling Manual for POTWs (EPA 831- B-94-01). c. Develop and distribute educational materials to contributing sources and potential contributing sources regarding the need to prevent cyanide discharges. d. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. … a "significant cyanide discharge" is occurring if the Plant's influent cyanide concentration exceeds 10 µg/L)

Cyanide Sources. The facility disinfection process is the main source of the small concentration of cyanide that is discharged. The cyanide concentration increases from zero to about 0.9 ug/L as a byproduct from the Facility's disinfection process. Many other wastewater treatment plants have also identified very small concentrations of cyanide produced as a disinfection byproduct. Cyanide is used in industrial electroplating operations and this is the only potentially significant source in the service area.

Cyanide Estimated Loading. Cyanide influent concentration levels remain at or below quantified levels of detection (3 ppb) since November 2005. Detected, but not quantified, values average between 0.4 and 1.5 ug/l.

Cyanide Prevention Plan			
Source	**Message / Program**	**Implementation & Timeline**	**Evaluation**
Industrial wastewater discharge	Inspect each potential contributor at least semiannually.	Review business licenses, internet listings, and referrals to update list of potential cyanide contributors annually.	Inspected 88 facilities that potentially use cyanide at least semiannually.
	Surveillance monitoring of IUs with cyanide processes.	Surveillance and monitoring of industrial discharges and facility influent to detect cyanide.	Three industrial discharge violations identified, enforcement issued, and compliance issues resolved.
	Distribute educational materials to potential sources.	Cyanide fact sheet is posted on City website and distributed by inspectors as needed.	Fact sheet was distributed at the April 2016 IU Academy.
Wastewater Facility effluent	Monitor cyanide in wastewater facility effluent monthly.	Facility effluent below discharge permit limits: 5.7 ug/l AMEL, 14 ug/l MDEL.	During 2016, effluent concentrations were well below reporting limit of 3 ppb.

Pretreatment Program Hosts Industrial User Academy

By Joann Douglas

The RWF's Pretreatment Program held its annual Industrial User Academy on April 21, bringing together environmental regulators and industry employees to discuss multiple aspects of the program. Thirty-one representatives from permitted industrial users met at the RWF to learn about Pretreatment Program requirements, environmental protection, pollution prevention, worker protection, infrastructure, and public health.

"We appreciate the opportunity to reach out to our regulated community," said **Casey Fitzgerald**, pretreatment program manager. "Not only does the Academy increase participants' knowledge of our program, but it also leads to improved compliance and reduction in pollutants discharged to the facility."

Brian Fontes and Tin Tin Myint lead an activity.

The Academy successfully reached its goal of educating industrial users: according to entry and exit surveys, attendees reported an improved understanding of program regulations and protocols and the RWF's function.

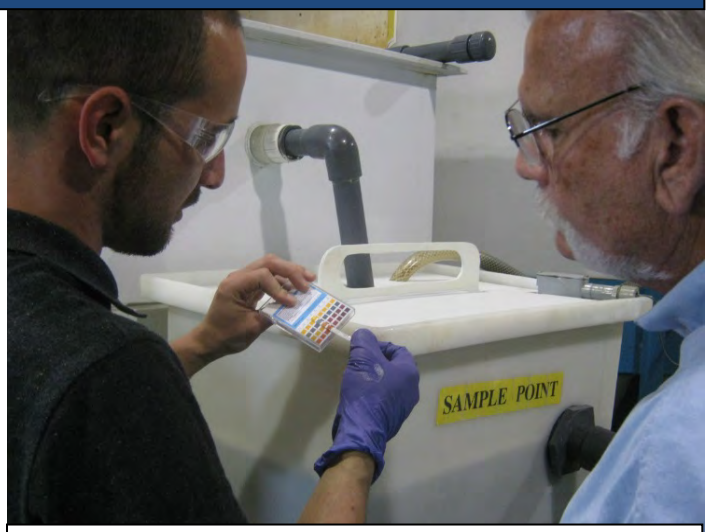
The day began with refreshments and a presentation by **Joanna De Sa**, RWF deputy director, on the treatment of sewage influent. **Alleyne Long**, senior environmental inspector, provided a historical presentation on the regulation of industrial users; the program's requirements; and federal, state, and local discharge regulations enforcement. **Stephen Lowes**, concluded the morning session with information on the Wastewater Discharge Permit application requirements and tips.

Pretreatment Program inspectors and laboratory staff led the afternoon presentations. The attendees' favorite session, led by Inspectors **Brian Fontes** and **Tin Tin Myint**, asked participants to separate into groups and form mock industries. The groups were then asked to manufacture a wafer in a confined workspace using paint as a "hazardous material." The mock industries made as many colored wafers as possible, matching the prototype's color and shape while minimizing the amount of "waste" and "hazardous materials" generated. What a great way to learn best practices for handling materials! The Academy ended with a guided bus tour of the RWF led by **Mike D'Arcy**. ✸

> *"The Academy... leads to improved compliance and reductions in pollutants discharged to the facility"*
> *~ Casey Fitzgerald, pretreatment program manager*

Source Control inspectors checking industry for wastewater discharge compliance.

Inspector Jack Dickinson at a metal finishing facility.



Chris Fivecoat checking pH at an industrial facility sample point.

PESTICIDES

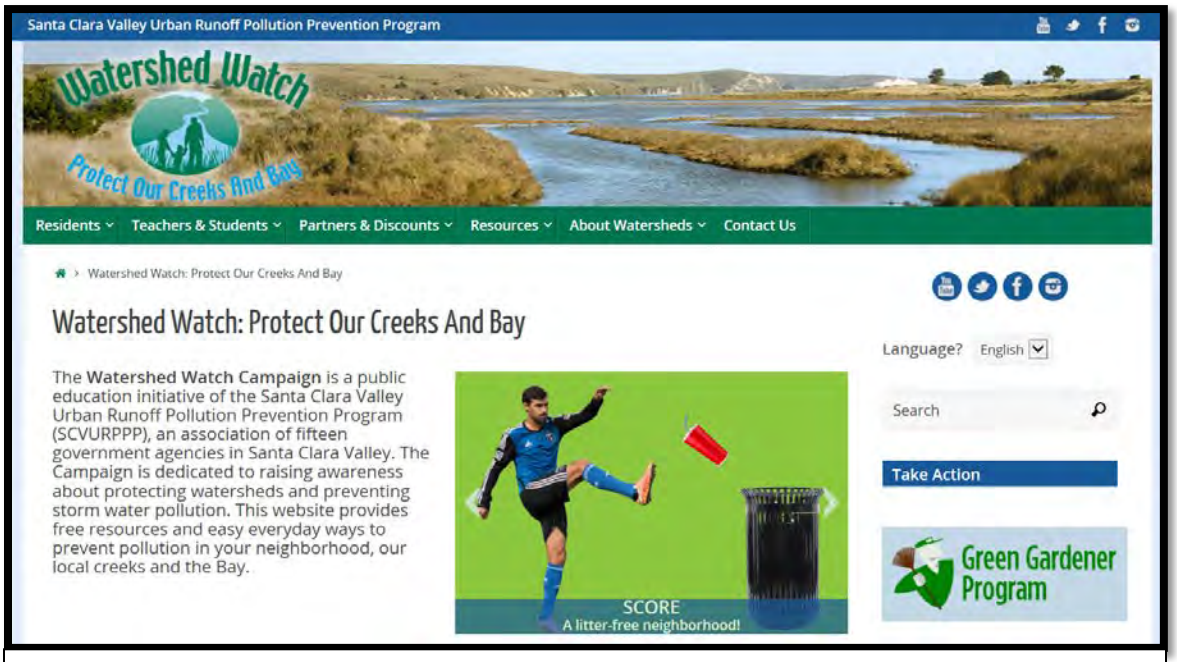
All Wastewater Facility effluent sample results for monitored pesticides were below detection limits using standard analytical methods. The Facility occasionally monitors effluent applying very low detection, non-standard, methods. With the notable exceptions of fipronil (used for flea control) and imidacloprid (used for fleas, termites, and insects generally), the SJ-SC RWF reliably removes the small concentrations of pesticides that arrive in sanitary sewage.

Pesticide Sources. Pesticides can enter Wastewater Facility influent due to indoor disposal of unused products and cleanup of application equipment via sinks and toilets. Most pesticide applications, however, occur outdoors. Therefore, contributions of pesticides to the Bay stem primarily from urban stormwater runoff and not from sanitary sewer sources.

Most pesticide pollution prevention efforts are implemented under the Municipal Regional Stormwater NPDES Permit (Stormwater Permit). Annual Stormwater Reports are available at: www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater

Pesticide Outreach. Outreach materials inform residents, businesses, and municipal employees about pesticide safety and pesticide reduction. These were developed and distributed through City, County, and Bay-wide stormwater pollution prevention programs like Bay Area Stormwater Management Agencies Association (BASMAA) and Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). SCVURPPP leads the County-wide pesticide outreach effort through *Watershed Watch* and BASMAA's *Our Water Our World (OWOW)* campaigns.

In FY15-16, the Watershed Watch outreach effort included TV and radio ads in South Bay radio stations and digital online media. The advertising campaign included 721 total spots on Integrated Pest Management (IPM) topics including 48 spots on hiring eco-friendly Pest Control Professionals and 69 spots on hiring a Santa Clara Valley Green Gardener.



Most pesticide outreach for Santa Clara County is coordinated through the Watershed Watch campaign: http://www.mywatershedwatch.org/

Pesticides Prevention Plan		
Message / Program	**Implementation & Timeline**	**Evaluation**
Commercial		
Distribute to business audiences "Hiring a Company that Can Prevent Pest Problems" residential fact sheet.	Distribute fact sheet at events as appropriate.	Factsheet was available on OWOW & SCVURPPP Watershed Watch web sites. It is also available at 36 stores in Santa Clara Valley that participate in the OWOW program.
Residential – Home Use & Disposal		
Advertise means of safe pesticide disposal on the City's website.	Advertise HHW availability for disposal of waste pesticides. ▪ Provide disposal service. ▪ Collect pesticides and poisons.	Santa Clara County HHW Program served 26,336 residents in FY 15-16 with no wait and no refusals. 173,250 pounds (37,040 gallons) of poisonous liquids and 136,957 pounds of poisonous solids were collected.
Municipal- Pesticides Applied on City Property		
Training of City employees; contractors invited to attend training. Follow City IPM Policy, SOPs, and BMPs. Use less-toxic pest controls.	Hold regular trainings on relevant IPM topics for all City employees that apply pesticides. Target: 100% of applicable employees receive training during a three-year cycle. Continue and complete IPM Pilot in approximately 65 San José parks and municipal facilities. Staff will be engaged in training opportunities and lessons learned from the pilot.	141 San José muni staff trained on City IPM Policy, SOPs, and BMPs during Annual Worker Safety Training. 42 municipal staff received City Chemical Advisory Board (CAB) training. Parks Maintenance District 3 Pilot Program continued study of reduction in pesticide use in 65 City neighborhood parks and municipal facilities San José's Pest Management Committee (PMC) met four times in 2016 and completed updates to BMPs and SOPs which were posted on the City's intranet site and distributed at PMC, CAB, and contractor meetings in the fall.

FOG

Fats, Oils, and Grease (FOG) are produced from food manufacturing as well as residential, commercial, and institutional food preparation. FOG clings to sewer pipes and causes clogs and sewer backups.

FOG Sources. The primary sources of FOG entering the Wastewater Treatment Facility are the commercial and residential sectors. Very small contributions of FOG are estimated to come from the industrial sector.

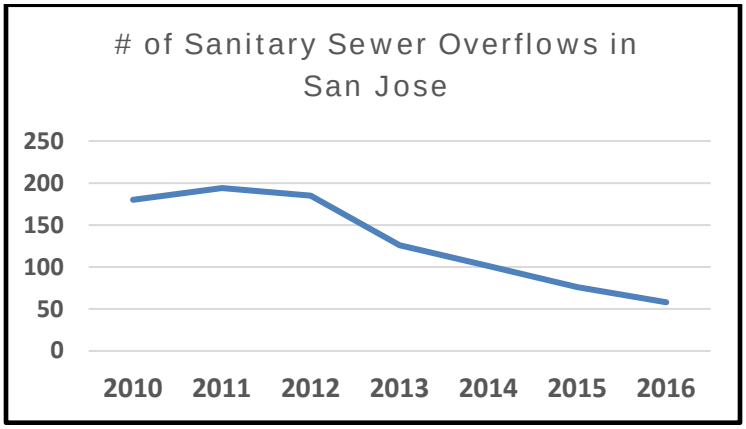
The Food Service Establishment (FSE) Inspection Program prioritizes FSE inspections based upon whether a site is grease producing, has adequate pretreatment, and the likelihood of an overflow to occur in that area. FOG violation history and last inspection date also influence inspection priorities. This approach increases inspection frequencies at locations most likely to cause or contribute to overflows in San José.

Sanitary Sewer Overflows. City of San José's Department of Transportation (DOT) sewer crews are responsible for maintaining the collection system and clearing sewer blockages. Some blockages in sewer lines may result in Sanitary Sewer Overflows (SSOs).

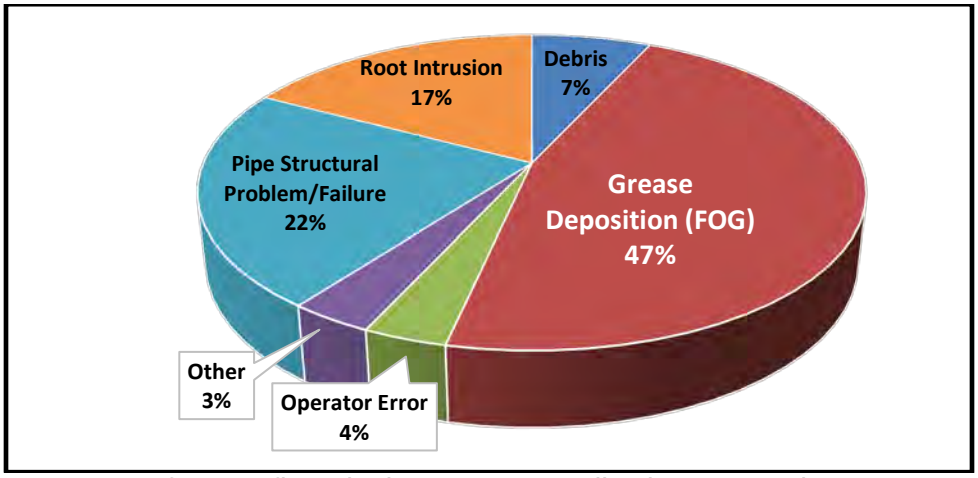
Sewer System Management Plan. Since December 2004, the City has reported all overflows into the statewide electronic database known as the Sewer System Management Plan (SSMP). Reports include volume, time, location, and cause of overflows. Volume of spill not recovered during cleanup is also noted. The SSMP describes seven elements of a FOG program:

SSMP Required FOG Program Elements
a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;
c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
d) Requirements to install grease removal devices (such as traps or interceptors) design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
e) Authority to inspect grease producing facilities, enforcement authorities, and whether the City has sufficient staff to inspect and enforce the FOG ordinance;
f) An identification of sewer system sections subject to FOG blockages and establish a cleaning maintenance schedule for each section; and
g) Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (f) above.

58 sanitary sewer overflows were reported in 2016. This is the fifth consecutive year of decreasing number of SSOs. Of the 58 SSOs, grease as the contributing cause for 27 (47%). When an overflow or significant blockage occurs in a residential area, and grease is the primary cause, City Sewer crews distribute door hangers in the area, educating residents about the impacts of grease in the sewer and informing them of alternative disposal methods. Residents are encouraged to call San Jose's Department of Transportation at (408) 794-1900 at any time to report sightings of sewer overflows.



Number of Sanitary Sewer Overflows in San Jose



Causes for Overflows in the San Jose Collection System in 2016

Food Service Establishment (FSE) Inspection Program. Plan checks are required for all FSEs being built or significantly remodeled in the Regional Wastewater Facility's tributary area and are performed as part of each jurisdiction's building permit process. Plan checks require installation of appropriate type and size of grease control devices based on factors such as the size of the restaurant, type of food served, and kitchen equipment. Requirements range from a 40-pound grease trap to a several-thousand gallon grease interceptor. The applicant must certify that grease traps will be cleaned at least once per month and grease interceptors will be cleaned a minimum of once per quarter. In 2016, the City performed 307 FSE plan checks for facilities in the Regional Wastewater Facility's Tributary Area.

FSEs in San José are inspected for compliance with BMPs related to grease management and grease removal device maintenance. During FY 15-16, 780 FSEs were inspected in San José and 856 FSEs were inspected in the Tributary

Food Service Establishment (FSE) Inspection Program				
	FY 12-13	FY13-14	FY14-15	FY15-16
FSE Inspections San Jose	822	636	653	780
FSE Inspections Tributary Areas	959	789	851	856
Plan Checks	303	360	242	307

Service Areas. FSEs in San José with Grease Control Devices (GCD) installed onsite also receive separate GCD inspections. In FY 15-16, 1,878 of the 2,405 GCDs were inspected.

A major component of the FSE Inspection Program is educating food service owners, managers, and workers on ordinance requirements and grease controlling BMPs. FOG-related educational materials assist with education efforts. During FY 15-16, more than 2,873 educational pieces were distributed during FSE inspections to help FSE operators achieve and maintain compliance.

Enforcement actions are taken against FSEs that fail to clean grease control devices at the minimum frequency or fail to keep records documenting the cleaning. Facilities found to have violations are re-inspected and enforcement is escalated until all violations are corrected. In FY 15-16, 862 of the 1,636 FSEs inspected had one or more violation (52%, up from 47% in FY 14-15). A total of 1,088 discrete violations were documented (up from 893 in FY 14-15), and 278 Official Warning Notices, 25 Compliance Meetings (up from 19 in FY 14-15), and 20 Administrative Citations (down from 24 in FY 14-15) were issued.

Grease Investigations: FSE Inspectors respond to reports of grease blockages in the sanitary sewer in San José and from collection system agencies throughout the Tributary area. These grease investigations involve inspecting FSEs near affected sewer lines for compliance with code requirements for grease control device installation and maintenance. Corrective actions are taken as needed to bring facilities into compliance and to minimize grease discharges to the collection system. During FY 15-16, the City performed 16 grease investigations involving 50 facilities, with 154 inspections conducted in connection with these grease investigations. 49 violations were documented, nine Official Warning Notices were issued, and one Administrative Citation were issued. Education is also an important component of grease investigations. 151 FOG-related educational materials were distributed in connection with grease investigations.

Inspector Mahmoud Jillo lifting the cover off a restaurant interceptor.

FOG		
Message / Program	**Implementation & Timeline**	**Evaluation**
Commercial Food Preparation		
Implement FOG Food Service Facility inspections as required in SSMP.	Target: Inspect 1,200 food facilities per year, and distribute educational materials as part of inspection.	In FY 15-16, 780 FSEs were inspected in San José and 856 facilities were inspected in Tributary jurisdictions. 52% of facilities had violations; a total of 1,088 discrete violations. 278 warning notices and 20 administrative citations were issued, and 25 compliance meetings held.
Distribute grease management information to inspected restaurants and FOG generators.	Educate food service owners/operators on FOG BMPs during inspections.	2,873 FOG BMPs and related info pieces distributed to inspected facilities in FY 15-16. Educational materials updated to align with FOG ordinance. Updated City website with FOG related information.
Inspect restaurants in response to DOT and tributary agency reports of grease blockages, or unusual build-up of grease in sewer lines.	Continue to respond to and investigate grease related overflows, blockages, and spills.	Investigated 16 grease complaints, involving 50 facilities. 154 inspections conducted. 9 OWNs and 1 Administrative Citation were issued. 151 educational materials distributed during investigations.
Plan checks for new and remodel food service facilities to size grease removal devices.	Plan check sizing criteria may be updated based on staff recommendations with input from consultant.	307 plan checks were conducted for City and Tributary area food service facilities.
Residential		
Educate residents about preventing grease blockages through BAPPG Spanish radio ad campaign.	Participate in grease message delivery through BACWA and BAPPG. Track number of Bay Area residents reached.	Delivered pollution prevention messages in the 9-county Bay Area through KBRG radio spots and 128 online streaming radio spots.
Respond to grease related sewer overflow complaints (DOT).	Notify residents via door hangers when grease-related overflows occur in residential areas.	58 overflows in 2016. 27 had grease as a contributing factor. DOT distributed door hangers in neighborhoods where residential grease blockages occurred.
FOG Art	Continue FOG art education campaign in 2017.	FOG art door hangers and manhole cover marking continues. Public workshop reception was positive.

FOG Art: #FOGWASTE

A member of DOT street cleaning crew marks a manhole in electric green.

In 2014, the San Jose Office of Cultural Affairs contracted with local artists, to developed pilot artwork about proper management of FOG in residential areas.

Phase One of the project, between Fall 2015 and Fall 2016 distributed 8,200 door hangers, painted ninety manholes, and applied graphics to nine maintenance trucks and three TV vans in two pilot neighborhoods.

From the City website:
https://www.sanjoseca.gov/index.aspx?NID=1656

#FOGWASTE
A new public art initiative aims to increase awareness of our city's sewer system, the people who maintain it, and its direct impact on the health of San José and the San Francisco Bay (Bay). Be on the lookout for these three electric green elements highlighting your infrastructure at work …

- Educational door-hangers.
- Manhole Cover Marking.
- Bold Graphics on City Maintenance Trucks

Post-installation community workshops indicated greater awareness of domestic practice on sanitary sewer infrastructure and watershed. Close to 40 parents from Santee School attended a final de-brief focus group in one of the two pilot areas. The door hanger graphics and marked trucks were extremely well received by community members.

DOT maintenance crew staff expressed pride in their contribution to the project. They also indicated that the project positively supports communicating with the public.

EMERGING CONTAMINANTS

City continues to engage in activities to increase public awareness regarding impact of emerging contaminants such as pharmaceuticals and other chemicals found in personal care products, cleaning products, and medications. In addition, the City participates in studies aimed at detecting and quantifying specific emerging contaminants in influent and effluent through the Regional Monitoring Program (RMP).

Emerging Contaminant Investigations in 2016

In 2016, the SJ-SC RWF continued collaborations with the Regional Monitoring Program (RMP) to perform investigations of emerging contaminants. Recent studies with the RMP focused on perfluorinated compounds, microplastics, and current use pesticides. The microplastics monitoring generated significant public attention, including multiple inquiries from the press and from senator Feinstein's office. This interest led to a microplastics workshop in June 2016, hosted by the RMP and attended by various stakeholders, including San Jose. Follow-up investigations of pharmaceutical fate and transport in the wastewater process were also initiated in 2016 in collaboration with the RMP and BACWA.

Microplastics. Results of a RMP Microplastics study were presented at the September 2015 State of the Estuary Conference. Eight Bay Area wastewater treatment plants, including the SJ-SC RWF were sampled. Microplastics were measured at relatively low particle counts per volume of water. However, due to the high volume of treated effluent discharged, the estimated total number of particles discharged from each wastewater treatment plant tested exceeded 1 million particles per day. The results of this limited monitoring led to the RMP convening a microplastics workshop in June 2016, which was attended by scientific, clothing industry, discharger, and regulatory stakeholders. The goal of the workshop was to agree upon future priorities with respect to microplastic studies. Outcomes of the workshop included prioritizing the establishment of a more refined definition of microplastics, and establishment of regional analytical methods that will positively differentiate microplastics from simple micro particles.

There is conflicting opinion among experts as to the ability to positively identify micro-particles as plastic or non-plastic without utilizing very expensive techniques. Photo courtesy of 5Gyres.

Pharmaceuticals. The RWF collaborated with the RMP and BACWA to collect wastewater samples for pharmaceutical analysis in 2016. This effort was motivated by the need for effluent data on pharmaceuticals from Bay Area POTWs. This need was discussed at the RMP Emerging Contaminant Workgroup Meeting and subsequent meetings of the Technical Review and Steering Committees. Wastewater agencies utilized AXYS analytical services for the laboratory analysis and RMP staff provided technical and logistical assistance. The RWF collected composite samples from effluent, influent, RO Concentrate, filter influent, and filter effluent in October 2016. Results from this analysis have not been received yet, but are forthcoming. Additionally, the RWF is planning to conduct two additional rounds of sampling for pharmaceuticals in 2017, one in the wet season, and another in the dry season. These three events will provide a valuable follow-up to the CEC fate and

transport study the RWF conducted in 2008-2009, which included a number of pharmaceuticals that showed little to no mass removal via wastewater treatment.

Emerging Contaminant Investigations planned. Based on past studies conducted from 2008 – 2016 and increasing efforts from the RMP, the RWF plans to conduct or support a number of investigations focused on increasing our understanding of CECs in 2017. These planned studies include:

- Additional focused monitoring of influent, effluent, and various process steps for pharmaceuticals that were identified in 2008 as having poor removal efficiency.
- Participation in ongoing Microplastic Strategy Workshops through the RMP to develop a sound plan and prioritization of efforts to understand sources, possible control measures, and environmental impacts of microplastics,
- Focused influent and effluent monitoring of microplastics if sampling and analytical techniques are refined through BACWA and RMP efforts.
- Additional monitoring of other CECs as identified and prioritized through the RMP Emerging Contaminant Workgroup.

Safe Medicine Disposal. The City participates in four types of activities that involve safe medicine disposal:

1. The City collects unused medications during Neighborhood Clean Up events (NCUs) hosted by the City's Code Enforcement Department. In 2016, 606 pounds of pharmaceuticals were collected at 23 events.
2. County-wide HHW Program: For FY 15-16, 7339 pounds of medications were collected at this location. City NCU events and participation in the County-wide HHW Program are described in greater detail in the Pollution Prevention Outreach and Services section that follows.
3. Police Departments of San Jose, Cupertino, Las Gatos, and Milpitas regularly participate in DEA National Prescription Drug Take-Back Day events. Local police departments supervised pharmaceutical take back at 9 locations in the service area during events held on April 30th and October 22nd in 2016: http://www.sjpd.org/iNews/viewPressRelease.asp?ID=2314, and http://www.sjpd.org/inews/viewPressRelease.asp?ID=2422
4. In June 2015, the City began participating with the Santa Clara Water District (SCVWD), on a three-year grant, in partnership with the CPSC and the County Department of Environmental Health's Household Hazardous Waste Program. Under the grant, 50 pharmaceutical take back boxes are being installed at Santa Clara County pharmacies. Locations of the current 47 county drop-off boxes are posted on the Santa Clara County website:https://www.sccgov.org/sites/rwr/hhw/Documents/Drop%20off%20locations%20for%20meds.pdf

Emerging Contaminant Plan		
Message / Program	**Implementation & Timeline**	**Evaluation**
Unwanted Medications *Do not flush unwanted medicine down the toilet or sink or put in trash.* Bring in unwanted medicine for proper disposal. Sponsor and support the collection of unwanted and expired pharmaceuticals.	Pursue partnership with retail pharmacy for collection of unwanted medicines. Track pounds of medications collected. Continue to collect pharmaceuticals at neighborhood cleanup events.	Collected 606 pounds of unwanted medicines at 23 Neighborhood Cleanup events. Local police departments participated in DEA National Prescription Drug Take-Back Day events on April 30th and October 22nd 2016. Pharmaceuticals were received at 9 service area locations during each event. 47 pharmaceutical drop boxes are now located in Santa Clara County under SCVWD grant program.
Santa Clara County HHW program. The City continues to provide ongoing residential outreach to promote HHW program.	City agreement to support County HHW facility continues through June 2018.	2015: City of San Jose and other participating cities signed 3-year funding and cooperative agreements with the County to operate the HHW facility. FY 15-16: County HHW facility served 26,336 residents and safely managed 2,434,003 pounds of hazardous waste: - 7,339 pounds of unwanted or expired medications collected. - 3,841 pounds of used sharps managed.
Investigation Work with SFEI-RMP to continue emerging contaminant studies.	Plan for future emerging contaminant studies on pharmaceuticals, microplastics, non-targeted analytes, & other prioritized CECs in or after 2017.	2016: Pharmaceutical monitoring in influent, effluent, and various process steps initiated, results are forthcoming. Study to continue into mid-2017.

A typical pharmaceutical take back box at a pharmacy.

POLLUTION PREVENTION OUTREACH & SERVICES

The City participates in various strategies and activities to educate and encourage general pollution prevention behavior.

Permanent San Jose Household HHW Facility.
This permanent facility has been providing service to residents since 2014. On 9 June 2015, the City of San Jose signed another cooperative agreement with the County of Santa Clara to continue to fund and manage the Countywide HHW Program for a current term from July 2015 through 30 June 2018. The County established a Countywide AB939 HHW Fee of $2.60 per each ton of any waste disposed to landfill or incinerated within the County to fund HHW operations.

Household Hazardous Waste Program
FOR SANTA CLARA COUNTY
SERVING RESIDENTS AND SMALL BUSINESSES

Santa Clara County residents may make appointments at www.HHW.org or call 408-299-7300 to drop off hazardous waste on Thursdays, Fridays, and Saturdays at 1608 Las Plumas Ave, San Jose, and monthly in San Martin and Sunnyvale. The City of Palo Alto has its own hazardous waste collection program at 2501 Embarcadero Way, Palo Alto. Drop-off is free. Proof of residency is required. Accepted items include: paints, polishes, acids, batteries, poisons, pesticides, solvents, pool chemicals, iodine, perchlorates, propane, helium, small oxygen tanks, smoke detectors and more.

For more information on hazardous waste drop-off sites in Santa Clara County, residents can call 408-299-7300. Appointments are required for drop-offs.

Photo courtesy of Silicon Valley Toxics Coalition
http://svtc.org/blog/e-waste/hazardous_waste/

Neighborhood Cleanup (NCU) Events.
City of San Jose hosts NCUs twice per month on average. NCUs are essentially a "big garbage day," from sunrise to afternoon, rain or shine. The main purpose of this program is to curb illegal dumping. Residents are encouraged to dispose items like furniture, mattresses, tires, carpet, packing material and such. The events are rotated on a three-year cycle throughout San Jose neighborhoods. The majority of collected materials are either recycled or reused. The City's Code Enforcement Division mails households a postcard which residents must bring to the NCU for entry. (https://www.sanjoseca.gov/index.aspx?NID=453)

Neighborhood Clean Up Events in 2016

	Events Hosted	Households Serviced	Yards of Refuse Removed	Yards Recycled
Jan	2	8666	2980	2507
Feb	1	2365	1510	1284
Mar	2	11866	4420	3757
Apr	3	12532	5602	4759
May	2	13007	2670	2270
Jun	2	7380	3280	2788
Jul	2	9614	2966	2520
Aug	2	13118	3918	3408
Sep	2	7754	3620	3034
Oct	2	7636	2896	2520
Nov	2	12109	2990	2553
Dec	1	3230	1730	1436
Total	**23**	**109,277**	**38,582**	**32,836**

Hazardous materials are not accepted at NCU events; however, these events provide a venue for educating residents about the County-wide HHW program where appointment are made for disposal by calling (408) 299-7300 or visiting www.HHW.org. Code Enforcement staff hand out a postcard with information on the County-wide HHW Program so that they can dispose of material properly.

Unwanted pharmaceuticals are normally collected at NCU events. A police officer is assigned from 0800 to 1230 hrs. The officer collects and transports all pharmaceuticals to police headquarters where material is booked and destroyed. In 2016, 606 pounds of pharmaceuticals were collected and properly disposed.

Items collected at NCUs: 2016	
Tires recycled	2,846
Refrigerators recycled	252
Mattresses removed	2,894
Computer monitors	352
TV's recycled	1,079
Pharmaceuticals (pounds)	606

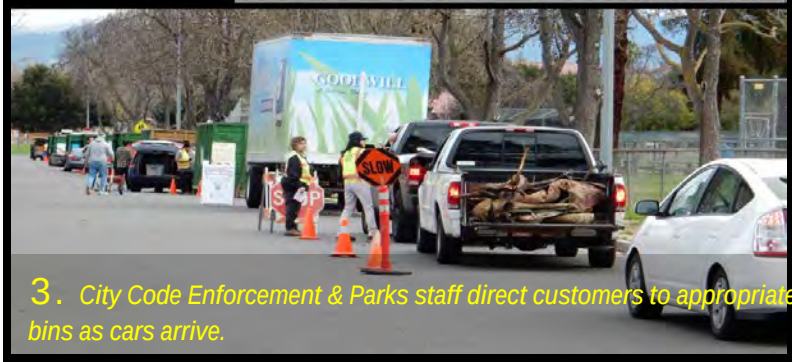
The City of San Jose hosted 23 Saturday Neighborhood Cleanup Events in 2016. Events are advertised well in advance. Roughly 50 to 60 personnel from City departments of Planning Building and Code Enforcement (PBCE) and Parks Recreation and Neighborhood Services (PRNS) staff each event. City staff serve as Bin Monitors and traffic coordinators. Event coordinators staff a main tent. Unwanted medicines are collected at this location under supervision of a San Jose Police Officer.

A number of refuse bins are placed at several locations in the targeted neighborhood to receive waste material. Basic bin assignments are rubbish, metal, wood, plastic, and mattresses. Additional specialty bins may be put out for tires, TVs, Air conditioners/Freezers, and rocks and bricks. Bins are trucked away as soon as they are filled.

A typical Saturday Neighborhood Clean Up (NCU)

1. *Site is chosen*

2. *Refuse Bins and Bin Monitors are deployed.*



3. *City Code Enforcement & Parks staff direct customers to appropriate bins as cars arrive.*

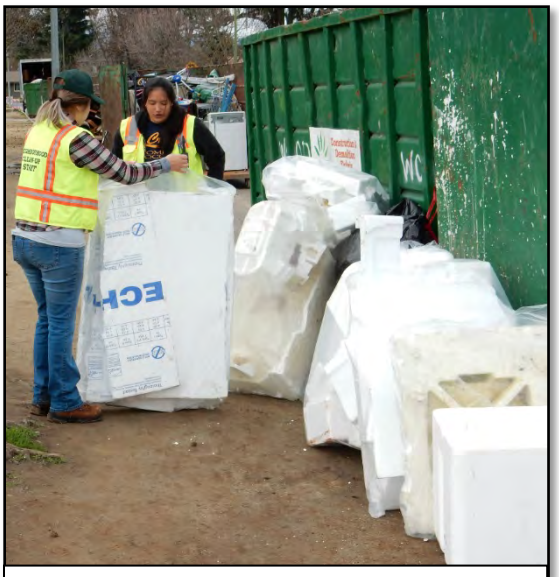
4. *Bin Monitors assist residents & ensure that correct material is disposed.*

Neighborhood Clean Up events encourage residents to dispose of large recyclable items.

NCUs accept pharmaceuticals & distribute Pollution Prevention messages.

5. *NCU Coordinator tracks the event & calls for pick up as bins fill.*

6. *Trucks arrive to pick up full bins.*



Styrofoam was recently added to the list of materials collected at NCU events

Code Enforcement Inspector & NCU Coordinator, Vince Tovar, drops a bag of unwanted medicine in the collection box under supervision of a San Jose police officer

Don Edwards San Francisco Bay National Wildlife Refuge Education Center.

Grade school students learn about aquatic bugs at a Living Wetlands class activity.

On 23 June 2015, the San Jose City Council approved a three-year $390,000 contract with the San Francisco Bay Wildlife Society (SFBWS), the fiscal agent for the Don Edwards Refuge. Under this contract, Don Edwards Refuge personnel will provide public education about water quality, pollution prevention, and protection of water dependent ecosystems. The agreement expands and continues the Refuge's "Living Wetlands" education and outreach program which provides weekend interpretive events for general public, classroom presentations, and field trip opportunities for 5th -12th grade schools, colleges, and universities. Eight different types of events are provided: education and outreach, public interpretive programs, teacher orientations, field trips, in-class presentations, a week-long summer day camp, joint Facility/Refuge tours, and interpretive displays. All events are free to qualifying participants.

Living Wetlands participants learn about pathways of wastewater and stormwater, native and endangered species, water conservation habits, and recycled water. The purpose is to have participants make more informed and educated choices about water conservation and pollution prevention for the benefit of local watersheds and wetlands. In FY 15-16, 4,588 students and educators participated in 115 educational events and field trips. Residents and visitors can contact the Environmental Education Center (1751 Grand Blvd. Alviso, CA) at 408-262-5513. Upcoming events are announced on the website: http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/Events.html

Fiscal Year Summary

Living Wetlands Program Participation Summary - Fiscal Year 2015-2016

Program Type	Proposed	Accomplished	Number of Participants
Special Event	2	2	499
Weekend Interpretive	16-24	20	315
Field Trips	12	17	633
Integrated Field Trips	26-36	50	1346
Classroom Presentations	12	15	389
Outreach Events	2	5	1266
Marsh-In Summer Camp	1	1	91
Alviso Boys & Girls Club	0	5	49
Total		**115**	**4588**

Students from Andrew P. Hill High School observe birds during their refuge habitat walk.

Other Education and Outreach.

Youth Education. The City's Watershed Protection youth education program develops and delivers watershed and P2 messages and curricula aligned with state standards to youth and youth educators through teacher workshops and partnership activities with other agencies, organizations, and institutions. From April 20 through May 11, 2016, the Creeks Come to Class curriculum was taught to roughly 200 4th and 5th grade students and several teachers at Summerdale Elementary School. Messages included: pollution prevention, the difference between sanitary and storm sewers, proper disposal of pharmaceuticals, pesticides, and mercury. Teachers, and students received "Wastewater Pathways" and "How Trash Gets into Creeks" flyers. Posters were provided for teachers to display.

Guadalupe River Parks Conservancy Water Festival. The Water Festival is an educational festival designed to celebrate our local watershed. Classes rotate through a series of activities intended to increase the awareness and importance of water and proper stewardship of water as a "resource". The event was held on September 14, 2016 at the Guadalupe River Park and Gardens. At this event 280 fifth grade students from Burbank Elementary, Franklin Elementary, and River Glen School engaged in an activity called "Pollution Soup" that teaches sources and impacts of wastewater and stormwater pollution. Students received a "Wastewater Pathways" and "How Trash Gets Into Creeks" flyers. Posters were provided for teachers.

San Jose Earthquakes Campaign. HHW disposal was promoted through in-stadium and out-of-stadium public outreach through San Jose Earthquakes soccer events. Matchday Magazine ads, stadium signs, and displays during three games reached an estimated 36,000 Earthquakes fans. Public Service Announcements describing Santa Clara County HHW Programs were also broadcast on AM stations KAZA 1370 and KLIV 1590 during the three games.

San Jose Sharks Campaign. An estimated 144,000 Sharks hockey fans were exposed to stadium ads and Public Service Announcements on FM station KFOG 95.8 during 12 games. HHW ads were also posted on both Earthquakes and Sharks team websites.

Regional Partnerships.

Regional Monitoring Program http://www.sfei.org/rmp The RMP is a collaborative effort between the San Francisco Estuary Institute (www.sfei.org), the San Francisco Bay Regional Water Quality Control Board (Water Board), and the regulated discharger community. The Water Board formed RMP in 1993 to conduct water quality measurements and investigations in the Estuary. The City contributes financially to the RMP, is active on the steering committee, and provides in-kind staff support for specific RMP pollutant studies.

Our Water, Our World http://www.ourwaterourworld.org/ The regional IPM partnership between BACWA and BASMAA was established in 2002 to promote less-toxic pest control. The partnership encourages less-toxic pest prevention and control methods by means of a point-of-sale Our Water, Our World (OWOW) promotional program. In FY 15-16, OWOW promotions continued to run in 36 hardware stores and nurseries in Santa Clara County.

Bay Area Pollution Prevention Group http://bacwa.org/committees/bay-area-pollution-prevention-group/ San José participates in the BAPPG. BAPPG member agencies work together to 1) Improve communication, 2) Coordinate regional pollution prevention projects, 3) Encourage and sponsor research and studies on topics related to pollution prevention, and

4) Develop regionally consistent public education messages and programs. BAPPG coordinates Bay Area-wide outreach including FOG radio and media advertisements, presentations at dental training events regarding mercury waste, to hospice and home care providers about proper pharmaceutical disposal, and to building code officials regarding disposal of demolition waste.

Stormwater Pollution Prevention Many pollutants addressed here are also of concern to regional stormwater pollution prevention efforts and are reported separately under the City of San Jose Stormwater Program or Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). See: http://scvurppp-w2k.com/ The Municipal Regional Stormwater Permit also includes requirements associated with public information and outreach.

General Pollution Prevention Outreach		
Program	**Description / Status**	**Evaluation**
Living Wetlands	Contract with Don Edwards Refuge Alviso Environmental Education Center to provide outreach services.	4588 students and adults were reached in the Wastewater Facility Tributary area in FY15-16.
Water Festival	On September 14th, 2016, a Water Festival for 5th graders was hosted by Guadalupe River Parks Conservancy.	Roughly 280 students were exposed to pollution prevention messages.
Neighborhood Cleanup (NCU) Events	Communicate and distribute P2 information while collecting HHW.	23 NCU events in 2016. Collected 606 pounds of pharmaceuticals.
Facilitate implementation of school environmental programs	Creeks Come to Class curriculum is taught elementary school students and teachers as part of a "Biologists in the Classroom" (BIC) pilot project.	"Creeks Come to Class" program was taught to 200 elementary school students. https://www.sanjoseca.gov/index.aspx?NID=2209
Sports Event advertisements	Household Hazardous Waste outreach provided to San Jose Earthquakes fans in conjunction with soccer games. Continue San Jose Earthquakes Campaign during 2016 soccer season	**San Jose Earthquakes.** ~36,000 fans received an ad in Matchday Magazine & saw stadium ads at three games. Fans heard PSAs in Spanish & English during three games on two AM stations. Earthquakes website posted an ad. **San Jose Sharks.** ~144,000 saw stadium ads at 12 games. Fans heard FM radio PSAs in English during 12 games. Sharks website posted an ad.
City of San Jose web page	Tips and advice for residential homeowners posted at: http://sanjoseca.gov/index.aspx?nid=1427	San Jose P2 related web sites garnered 12,326 web visits in 2016.

ATTACHMENT A – Santa Clara County Annual HHW Memorandum

County of Santa Clara
Consumer and Environmental Protection Agency
Recycling and Waste Reduction Division
Household Hazardous Waste Program
1555 Berger Drive, Bldg 2, Suite 300
San Jose, CA 95112
Tel: (408) 299-7300 Fax: (408) 280-6479
http://www.HHW.org

Memorandum

July 25, 2016

To: Storm Water/Urban Runoff P2 Staff

From: Bill Grimes, Program Manager
Household Hazardous Waste Program
Recycling and Waste Reduction Division
County of Santa Clara

Re: Fiscal Year 2015-2016 HHW Program Update

Participation
The HHW Program served 26,336 residents from July 1, 2015 through June 30, 2016 and safely managed 2,434,003 pounds of hazardous waste. There were a total of 150 collection events: 142 at two permanent facilities and 8 at temporary sites strategically located throughout the County. In addition, the program served 453 small business drop-offs including local governments, Goodwill Industries, and the Salvation Army.

Paint
A total of 1,168,630 pounds of paint and paint related material was collected. Latex paint accounted for 626,968 pounds and oil-based paint related material accounted for 541,662 pounds. There are an additional 38 take-back locations managed by the paint manufacturers at retail stores. Paint collected at these locations do not contribute to the above quantities.

Pesticides
The HHW Program collected 173,250 pounds (37,040 gallons) of poisonous liquids, and 136,957 pounds of poisonous solids.

Household batteries
A total of 182,028 pounds of household batteries were collected and recycled. Of that volume, retail take-back stores accounted for 119,498 pounds. Thirty-five (35) stores serve as our network of battery take-back partners. In addition, our battery partners manage their collected rechargeable batteries directly through Call2Recycle, the North American Product Stewardship Organization funded by the producers. Lastly, there are there are over 50 additional Santa Clara County locations that take-back batteries that are not part of our network of partners.

Mercury-containing fluorescent lamps
A total of 131,116 pounds of fluorescent lamps were collected. Of that volume, retail take-back stores accounted for 110,147 pounds. The remaining were collected at HHW events. Thirty-two (32) stores serve as fluorescent lamp take-back partners. Similar to batteries, there are more than a dozen other Santa Clara County locations that take-back fluorescent lamps that are not part of our network of partners.

Elemental Mercury
375 pounds (includes thermostats, thermometers and other mercury containing products)

Pharmaceuticals and Sharps
A total of 7,339 pounds of unwanted/expired medications were managed.
A total of 3,841 pounds of used sharps were managed.

Public Outreach
Staff participated in 28 community outreach events.