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San José-Santa Clara Regional Wastewater Facility

Annual Pollution Prevention Report



**San José-Santa Clara
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San José-Santa Clara Regional Wastewater Facility

2019 Pollution Prevention Annual Report

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Acknowledgements

Reporting for the San José-Santa Clara Regional Wastewater Facility is managed by the Wastewater Compliance Team with inputs and assistance from several contributors from the City of San José, Santa Clara County, and the City of Santa Clara, including:

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Executive Summary

This report summarizes the past year of Pollution Prevention (P2) activities within the San José – Santa Clara Regional Wastewater Facility (SJ-SC RWF) collection area. A description of the facility, its service area, and the process for selecting pollutants of concern is provided. Subsequent sections summarize activities, accomplishments, and outreach efforts over the past year that were aimed at minimizing those pollutants. Pollutants of concern include mercury, polychlorinated biphenyls (PCBs), copper, cyanide, pesticides, and fats, oils, & grease (FOG).

In 2019, the SJ-SC RWF continued to see reductions in, or no evidence of, wastewater loads for all pollutants of concern. Outreach efforts continue to expand, increase, and adapt to SJ-SC RWF employees and the public. The SJ-SC RWF continues to participate in several regional partnerships and activities, allowing staff to monitor and evaluate the risks of emerging contaminants at this facility.



FIGURE 1. POLLUTION PREVENTION INFOGRAPHIC

Regulatory Requirement

The Annual Pollutant Minimization Report (P2 Report) for the SJ-SC RWF is prepared in accordance with National Pollutant Discharge Elimination System (NPDES) Permit Number CA0037842, Order 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, 2019 to December 31, 2019.

Description of treatment plant

Service Area Description

The SJ-SC RWF services a 300-square mile area (Figure 2) encompassing the cities of San José and Santa Clara along with the territories of eight cities and unincorporated areas (referred to as Tributary Agencies). The SJ-SC RWF is permitted to clean up to 167 million gallons per day in the dry season and has a permitted wet weather peak capacity of 261 million gallons per day. Of the total wastewater flow to the SJ-SC RWF, 77 percent is estimated to come from the residential sector, 5 percent from the industrial sector, and 18 percent from commercial businesses.

SJ-SC RWF

The SJ-SC RWF is located at 700 Los Esteros Road, in San José. In 2019, an average of approximately 108 million gallons per day of sewage flowed in and received 8 to 10 hours of advanced treatment. Some treated wastewater is recycled. The majority flows out into Artesian Slough and Lower Coyote Creek.

The SJ-SC RWF began service to the cities of San José and Santa Clara in 1956. Through the 1960s and 1970s additional cities and county sanitation districts tied in to the SJ-SC RWF and service area 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) that reduced 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. Recent and ongoing studies of fish, phytoplankton, and invertebrates indicate that the waters immediately downstream of the SJ-SC RWF support abundant, highly diverse communities of fish and estuarine invertebrates. The SJ-SC RWF receives wastewater from roughly 1.5 million residents and more than 17,000 commercial and industrial facilities, including 215 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 (Campbell, Los Gatos, Monte Sereno, and Saratoga).

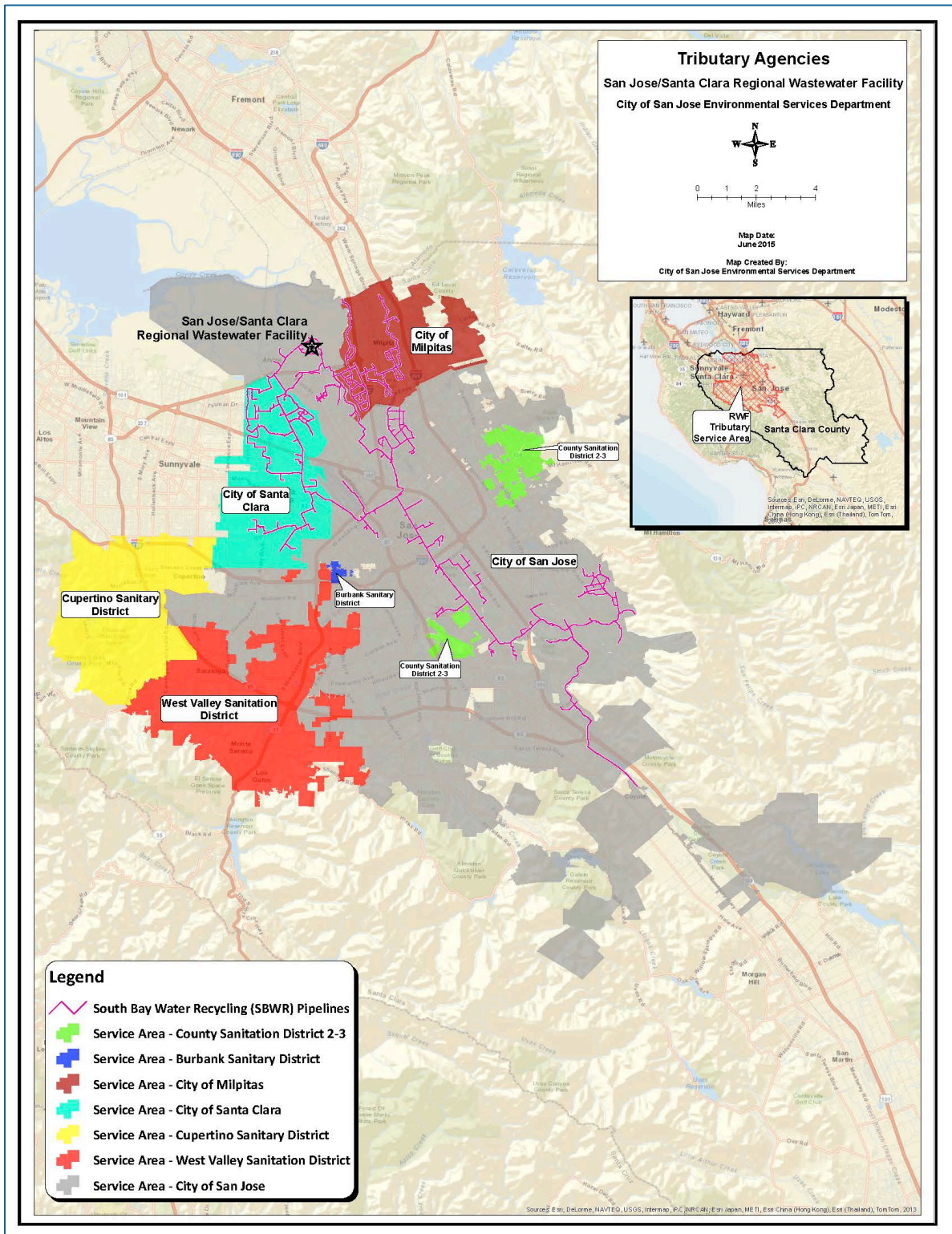


FIGURE 2. SJ-SC RWF SERVICE AREA AND TRIBUTARY AGENCIES

Pollutants of concern

Table 1, below, details SJ-SC RWF pollutants of concern and the reasons for choosing those pollutants.

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 cost.

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 a concentration that poses a threat of permit violation for at least a decade.

Tier 2: A secondary level of concern is for substances that, 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 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 microplastics, pesticides without water quality objectives, 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.

TABLE 1. POLLUTANTS OF CONCERN AND RATIONALE FOR SELECTION

Pollutant	Tier	Rationale
<i>Mercury</i>	Tier 2	TMDL
<i>PCBs</i>	Tier 2	TMDL
<i>Copper</i>	Tier 2	Permit Action Plan
<i>Cyanide</i>	Tier 2	Permit Action Plan
<i>Pesticides</i>	Tier 2, Tier 4	TMDL & Emerging Contaminants
<i>FOG</i>	Tier 3	Operational Impact – collection system
<i>Pharmaceuticals</i>	Tier 4	Emerging Contaminants
<i>Microplastics</i>	Tier 4	Emerging Contaminants

Additional details on rationale for selecting pollutants can be found in Section “Pollutants of Concern Discussion.”

Identification of Pollutant Sources

Table 2, below, details SJ-SC RWF pollutants of concern and their sources.

TABLE 2. POLLUTANTS AND THEIR SOURCES.

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

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.

Influent, Effluent and Sludge Monitoring

EPA priority pollutants are monitored in 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 José, Environmental Services Department (ESD) website. The *San José-Santa Clara Regional Wastewater Facility Annual Self-Monitoring Reports*, which summarize the same information, are also found on the [website](http://www.sanjoseca.gov/regulatoryreports)¹.

¹ <http://www.sanjoseca.gov/regulatoryreports>

FOG and Sewer Investigations

The City maintains a team of 4 inspectors and assistant inspectors who investigate FOG-related collection system problems, in addition the City of Santa Clara has two staff dedicated to the FOG program (Code Enforcement Officer and Code Enforcement Technician), as well as clerical support. These teams perform routine inspections of grease control devices (GCDs) at food service establishments (FSEs) to ensure the devices are maintained and FOG-controlling best management practices (BMPs) are implemented. The teams also investigate sewer blockages in commercial areas, whether caused by FOG or other material, and recommends corrective actions.

Special Studies

The SJ-SC RWF 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 (SFEI) and Regional Monitoring Program (RMP). The goal is to identify pollutants that may pass through the wastewater facility and into the Bay, ideally before they result in ecological problems.

Additional details on identification of specific pollutants can be found in Section "Pollutants of Concern Discussion."



FIGURE 3. SOURCE CONTROL TEAM MEMBER, JAIME GUTIERREZ, PERFORMING A SITE INSPECTION

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 can 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 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 SFEI and the RMP. Ideas for reducing pollutants are often generated by collaborating with other facilities through those venues. Feasibility of specific pollutant reduction efforts in the SJ-SC RWF service area are determined by surveying residents, commercial and industrial businesses, hospitals, government agencies, and retail stores, as appropriate.

BMPs

Very often, industry guidelines, in the form of BMPs have already been generated by industrial trade groups or agencies under The Environmental Protection Agency (EPA). Local collaboration through Bay Area Pollution Prevention Group (BAPPG - a BACWA committee) develops and/or vets BMPs to determine those 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.

Additional details on specific tasks for pollutants can be found in Section "Pollutants of Concern Discussion."

Outreach to employees

Many SJ-SC RWF employees are also residents in the area and receive public outreach messages related to pollution prevention. In addition, pesticides are a primary pollutant of concern that come from residents and have the potential for environmental release or operational upset at the SJ-SC RWF. Therefore, the City of San José provides pesticides training to employees. In 2019, 169 city staff were trained on the City's Integrated Pest Management (IPM) policy, standard operating procedures (SOPs), and BMPs during the Annual Worker Safety Training and special team-specific outreach training sessions, representing 100% coverage for applicable employees.

Additional details and information on this training and outreach can be found in the "Pollutants of Concern Discussion" section of this report.

The screenshot displays the Environmental Services Department (ESD) intranet page for Pesticide Management. The page is titled "Pesticide Management" and includes an "Introduction" section. The introduction text reads: "Welcome to the City of San Jose's Pest Management intranet site. This page contains information to help City staff effectively implement pest management throughout City facilities and lands, as well as to comply with the City's [NPDES Stormwater Permit](#). The City strives to implement Integrated Pest Management (IPM), a pest management method that calls for active pest prevention, effective and reduced-risk control measures, and thoughtful oversight and planning. Our goal is to prevent and control pests effectively with the least potential harm to humans and the environment." Below the introduction is a section titled "Contracting/Purchasing IPM and Related Services" which lists four items: "City Pollution Prevention Policy (Item #4)", "Integrated Pest Management Best Management Practices and Standard Operating Procedures", "Standard IPM Language", and "IPM Contractor Certification Statement". At the bottom of the page, there are social media interaction buttons for "Like", "Comment", "12 Views", and "Save for later", along with a "Feedback" button.

FIGURE 4. IPM INFORMATION ON THE CITY'S INTRANET SITE

Public outreach

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

Permanent HHW Facilities

In Santa Clara County there are two permanent household hazardous waste (HHW) facilities. One facility is in San Martin and the other in San José. On June 5, 2018, the City of San José signed another cooperative agreement with the County of Santa Clara to continue to fund and participate in the Countywide HHW Program for a three-year term from July 1, 2018 through June 30, 2021. 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.

Santa Clara County residents may make no-cost appointments at www.HHW.org or call 408-299-7300 to drop off HHW on Thursdays, Fridays, and Saturdays at San José Environmental Innovation Center (SJ EIC) located at 1608 Las Plumas Ave, San José, and monthly at either the San Martin permanent HHW Facility or at temporary collection events held throughout the county. Residents may also drop off most hazardous wastes at approved retail take-back locations, a list of which is on the County's HHW website. Drop-off is free for residents and proof of residency is required. In addition, conditionally exempt small quantity generators (CESQGs) may utilize the HHW facility for a competitive rate.

Accepted items include paints, polishes, acids, batteries, poisons, pesticides, solvents, pool chemicals, iodine, perchlorates, propane, helium, small oxygen tanks, smoke detectors and more.

The Santa Clara County HHW Program served 35,452 appointments in FY 18-19 with no wait and no refusals. For more information on hazardous waste drop-off sites in Santa Clara County, residents and CESQGs can visit www.HHW.org or call 408-299-7300. Appointments are required for drop-off events.



FIGURE 5. SJ EIC, LOCATION OF ONE OF SANTA CLARA'S HHW FACILITIES

Beautification Days, Junk Pickup, and RAPID cleanup team



FIGURE 6. BEAUTIFICATION DAY CLEANUP TEAM AT WORK

The Citywide Neighborhood Cleanup (NCU) program ended in December 2017 and was replaced with Council District Beautification Days and the residential Junk Pickup program. These programs were implemented to reduce illegal dumping throughout the City and beautify San José. With the Beautification Day program, each Council District receives an \$18,000 annual beautification budget and can choose to allocate the funds for cleanup days, litter pickups, graffiti removal, public plantings, etc. Beautification Day cleanups are scheduled by and for individual Council

Districts and are designed to encourage residents to dispose of items like furniture, mattresses, tires, carpet, small plastic appliances, and packing material. Local non-profits also attend most events to collect items that are in reusable condition. Most material collected at these events are either recycled or reused. A summary of the FY 2018-2019 Beautification Days can be found in Table 3.

TABLE 3. FY 2018-2019 BEAUTIFICATION DAYS SUMMARY

	Events hosted	Tons collected	Tons recycled	Tons donated
July	1	12	9	0.00
August	6	87	66	0.57
September	5	86	65	2.53
October	4	35	26	0.78
November	4	63	48	0.08
December	4	62	47	2.30
January	0	0	0	0
February	2	48	37	1.08
March	3	45	35	1.15
April	6	114	88	0.71
May	5	52	40	0
June	18	209	159	0
Total:	58	813	620	9.2

Hazardous materials and pharmaceuticals are not accepted at Beautification Day events; however, residents are educated about the County-wide HHW program where appointments are made for disposal of hazardous materials by calling (408) 299-7300 or visiting www.HHW.org.

In addition to Beautification Days, ESD offers residents free unlimited curbside Junk Pickups to encourage residents to legally dispose of large items. The most commonly collected items include mattresses/box springs, couches and miscellaneous furniture. Items such as refrigerators and TVs have also been collected. In FY 18-19 a total of 7,700 tons of materials were collected and properly disposed of through the Junk Pickup program.

Another effort aimed at preventing illegal dumping and improper disposal is ESD's Removing and Preventing Illegal Dumping (RAPID) team, which cleans up illegal dumping such as furniture, mattresses, e-waste, appliances, tires, and hazardous waste from city roadway shoulders, park-strips, and sidewalks. Within the 2018-2019 fiscal year, RAPID cleaned approximately 20,500 illegal dump sites, and collected approximately 3,400 tons of debris including about 250 gallons of human biological waste (Table 4). These materials could otherwise be disposed of improperly or find their way into storm drains or waterways.



FIGURE 7. IMPROPERLY DISPOSED HHW LOCATED AND CLEANED BY RAPID TEAM

TABLE 4. SELECT ITEMS COLLECTED BY RAPID TEAM IN FY 18-19

Item	Quantity collected
Tires	1,453
Refrigerators	96
Mattresses	4,121
TVs recycled	497
Paint	451 gal
Human biological waste	241 gal

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.

In FY 18-19, the Creeks Come to Class (CCC) curriculum was taught to roughly 100 grade school students and four teachers. 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.

The Biologists in Classrooms (BIC) program trains high school students how to teach the CCC curriculum to elementary school learners. From April 4 to May 16, 2019, 45 high school students from Independence High School learned to teach watershed protection and pollution prevention subjects and subsequently taught them to 260 elementary learners, grades 3 through 5 from St John Vianney School and Summerdale Elementary School.

Christmas in the Park

ESD shared environmentally friendly messages at Christmas in the Park, one of the South Bay region's signature holiday events located at Cesar Chavez Plaza in downtown San José. As an event sponsor, San José's messages were showcased using displays, signage, sounds of the season announcements, and online presence throughout the month-long event to more than 800,000 visitors from across the Bay Area. Pollution prevention messaging at Christmas in the Park in 2019 was delivered via Sounds of the Season public announcements. The announcements informed attendees about proper disposal of wipes and of HHW at designated collection locations, bins. In addition, a dashboard ad with a wipe disposal message was placed at the rink of Downtown Ice, an annual holiday event next to Christmas in the Park from November 2019 through January 2020.

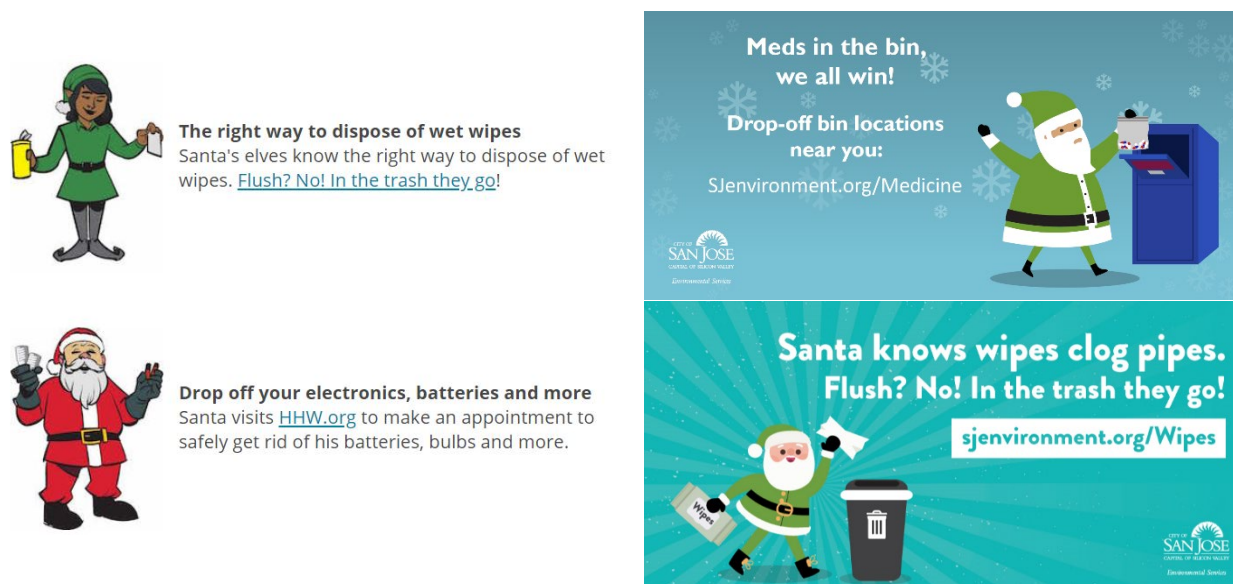


FIGURE 8. CITY OF SAN JOSÉ 2019 CHRISTMAS IN THE PARK MESSAGING

Sports campaigns



FIGURE 9. QUAKES POLLUTION PREVENTION SOCIAL MEDIA POST

San José expanded its sports team outreach with the Major League Soccer team San José Earthquakes (Quakes) and hockey team San José Sharks (Sharks) in the months of September and October. The P2 ads promoted safe medicine disposal through the message: **Meds in the bin, we all win.** The sports campaign leveraged the slogan initiated by California Product Stewardship Council (CPSC), Santa Clara County, City of San José, and Santa Clara Valley Water District (SCVWD) from 2015-2017. Ads included web and mobile ads via Facebook/Instagram, Twitter, and Google; Uforia Streaming radio ads; Univision web/mobile ads; a billboard; and Santa Clara Valley Transportation Authority (VTA) bus shelters. Ads also ran on game-day radio during away games in September and October in both English and Spanish. In-stadium outreach included a booth; matchday ads; LED signage; public addresses; sponsored social media; and web and mobile banners.

Quakes Campaign

HHW and safe medicine disposal was promoted through in-stadium and out-of-stadium public outreach via a sports campaign effort: **Meds in the bin, we all win.** Messaging appeared at two home and three away San José Earthquakes games in September 2019, reaching an estimated 636,000 Quakes fans. A breakdown of tactics and impressions is found below in Table 5.



FIGURE 10. SPANISH LANGUAGE QUAKES MESSAGING

TABLE 5. 2019 QUAKES TACTICS AND IMPRESSIONS

Quakes Tactics	Impressions Sept 2019
Univision Online & Mobile	350,079
Twitter	133,929
Facebook	116,422
LED signage	36,000
Total	636,430

Sharks Campaign

An estimated 138,000 Sharks hockey fans were exposed to stadium ads this year during 8 home games in February 2019 and in October 2019. HHW and safe medicine disposal ads using the “Meds in the bin, we all win” message were also posted on VTA bus shelters, billboards, social media, and Uforia online radio streaming. This totaled an outreach of roughly 827,000 for February and 13 million people for October. Sharks tactics and impressions are summarized in Table 6 below.

TABLE 6. 2019 SHARKS TACTICS AND IMPRESSIONS

Sharks Tactics	Impressions Feb 2019	Impressions Oct 2019
Facebook	136,387	307,725
Twitter	183,708	242,516
Google Display	438,184	3,280,000
Billboard	N/A	3,453,594
VTA Bus Shelters	N/A	1,111,059
LED Signage	68,836	68,836
Univision/Uforia	N/A	350,079
Total	827,115	13,162,938

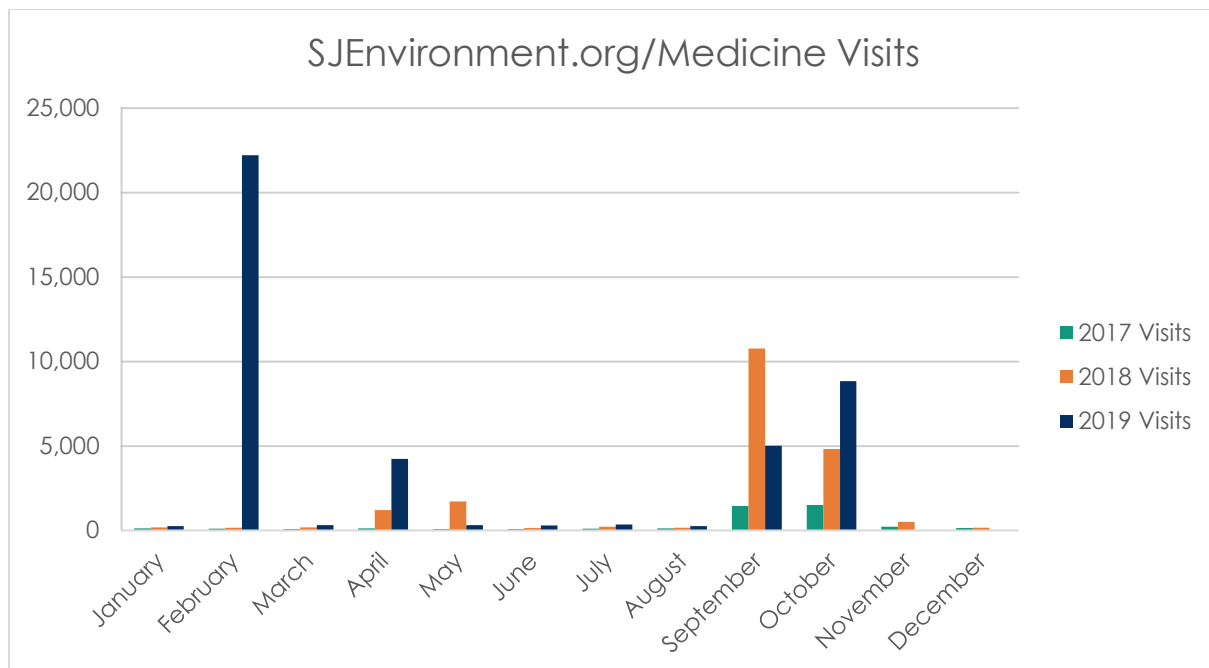


FIGURE 11. SJENVIRONMENT.ORG/MEDICINE VISITS 2017-2019

WEBSITE VISITS IN FEBRUARY 2019 DURING SHARKS CAMPAIGN WERE HIGHEST YET.

Total combined impressions from all sports-campaign P2 efforts on web, mobile, in-game, and in-person were 14,626,483.



FIGURE 12. SHARKS "MEDS IN THE BIN, WE ALL WIN" BILLBOARD

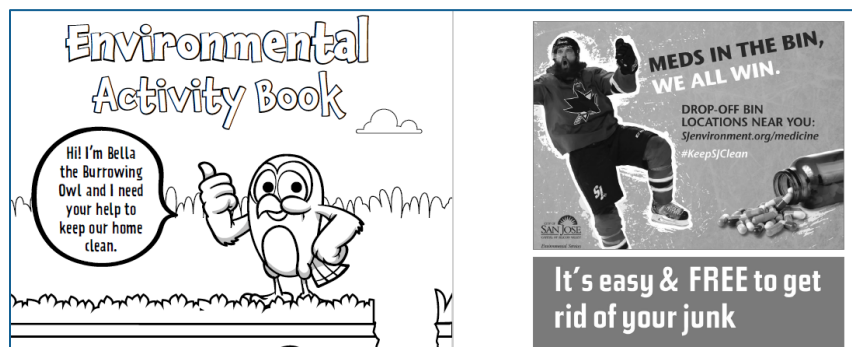


FIGURE 14. SHARKS OUTREACH FEATURED IN ESD'S CHILDREN'S ENVIRONMENTAL ACTIVITY BOOK



FIGURE 13. LED SIGNAGE AT ALL HOME GAMES IN OCTOBER

Regional Partnerships

RMP

The RMP² is a collaborative effort between the SFEI, 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, technical review committee, and workgroups. The City also provides in-kind staff support for specific RMP pollutant studies.

² <http://www.sfei.org/rmp>

Our Water, Our World

The regional IPM partnership between BACWA and Bay Area Stormwater Management Agencies Association (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 \(OWOW\)](#)³ promotional program. In FY 18-19, OWOW promotions ran in 22 hardware stores and nurseries in Santa Clara County.

BAPPG

San José participates in the BACWA group, [BAPPG](#)⁴. 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 a [website](#)⁵, 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.

BAPPG submits a separate [annual report](#)⁶ that captures the regional collaborative's activities for the year. The 2019 key messages include:

1. Copper
 - a. Select only ASTM B813 water-flushable flux rather than petroleum-based flux (which is not flushable and increases pipe corrosion rates).
 - b. Incorporate additional BMPs during design, reaming, cleaning, and building commissioning that will reduce pipe corrosion rate.
 - c. Seek mitigation options for copper products that are used in swimming pools, spas, and fountain treatments (often drained to sanitary sewer) as well as copper-treated fabrics that are subsequently laundered.
2. FOG
 - a. Don't pour grease down the drain – collect and recycle used cooking oil
3. Mercury and Silver
 - a. Dental amalgam and silver fixer wastes are hazardous and shall not be disposed in dental office sinks.
 - b. Incorporate BMPs for dental amalgam, silver fixer, and other hazardous wastes within a dental office.
 - c. The mandated use of BMPs and amalgam separators has significantly decreased the mercury loads into the sewer.
 - d. As of July 2017, the US EPA is mandating the installation of amalgam separators and the use of several key BMPs.
4. Pesticides

³ <http://ourwaterourworld.org/>

⁴ <https://bacwa.org/committees/bay-area-pollution-prevention-group/>

⁵ <https://baywise.org/>

⁶ <https://bacwa.org/wp-content/uploads/2020/01/2019-BAPPG-Annual-Report.pdf>

- a. Promote integrated pest management and less-toxic products as alternatives to pesticides.
 - b. Seek alternatives to fipronil and imidacloprid and other topical (collar and spot-on) pet treatments (conducted alternative analysis, completed talking points for veterinarians and currently drafting messages for general public).
 - c. Work with pesticides regulators to improve their ability to address POTWs during pesticide registration, to support their monitoring efforts, and to implement mitigation when needed.
5. Pharmaceuticals
 - a. No Drugs Down the Drain
 - b. Don't Rush to Flush – Meds in the Bin, We All Win!
 - c. Prevent Accidental Poisoning, Drug Abuse and Water Pollution by disposing medicines properly
 6. Trash and Wipes
 - a. Wipes Clog Pipes!
 - b. Toilets Aren't Trashcans

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 José Stormwater Program or [Santa Clara Valley Urban Runoff Pollution Prevention Program \(SCVURPPP\)](#)⁷. The Municipal Regional Stormwater Permit also includes requirements associated with public information and outreach.

Summary

Table 7 summarizes pollution prevention outreach tactics and effectiveness for 2019.

TABLE 7. GENERAL POLLUTION PREVENTION OUTREACH

Program	Description / Status	Evaluation
Beautification Events	<p>Communicate and distribute P2 information on HHW disposal while collecting non-hazardous waste and pharmaceuticals.</p> <p>NCU Events ended December 2017 and are replaced by City Council District-specific beautification events that can incorporate graffiti removal, new plantings, waste disposal and more.</p>	<p>55 Beautification Day cleanups in FY 2018-19.</p> <ul style="list-style-type: none"> - 550 tons of material collected. - 9 tons were donated to local non-profits. - 494 pounds of pharmaceuticals.
Facilitate implementation of school	CCC curriculum is taught to elementary school students to teach awareness about water and pollution	CCC program was taught to 100 elementary school students and four teachers.

⁷ <http://scvurppp-w2k.com/>

Program	Description / Status	Evaluation
environmental programs	<p>prevention. CCC staff continued using kinetic activities, including 5-minute reviews, a song about water conservation, and redesigned The Who Will Survive? component to include a tag game teaching predator-prey relationships.</p> <p>Biologists in Classrooms (BIC), continued in 2019. High school students are trained to teach CCC curriculum and teach elementary learners.</p>	<p>100 materials distributed 150 giveaways BIC Program was taught to 45 high school "student teachers," who taught 260 elementary school student learners.</p>
Christmas in the Park	<p>Christmas in the Park is a signature month-long holiday event for the South Bay located in downtown San José. Environmentally friendly messages were shared with attendees through a Victorian House display and safe disposal of wipes messages were broadcast to attendees via "Sounds of the Season" PSA announcements.</p> <p>In addition, a dashboard ad with the safe disposal of wipes was placed at the rink of Downtown Ice, an annual holiday event next to Christmas in the Park that ran from November 2019 through January 2020.</p>	<p>The dashboard ad and the Sounds of the Season announcements broadcast during Christmas in the Park (Nov. 29, 2019 – Jan. 5, 2020) about proper disposal of wipes reached an estimated 800,000 visitors.</p>
Sports Event advertisements	<p>Following successful campaigns in previous years, outreach campaigns promoting the safe disposal of medicine continued in 2019 at Quakes (September 2019) and Sharks (October 2019) games. In addition, there was a campaign promoting the safe disposal of HHW in May 2019 (Quakes).</p> <p>Ads promoted the message, "Meds in the bin, we all win" and drove traffic to the "medicine page⁸," which provided a list of locations in San José and in the region where residents could safely dispose of their medicine.</p> <p>In addition, staff provided FOG awareness outreach and handed</p>	<p>Combined impressions for both sports campaigns in 2019 were 14,626,483.</p> <p><i>San José Quakes</i></p> <ul style="list-style-type: none"> - 5,006 visitors to the medicine page in September 2019 during the Quakes campaign. This is a 53% decrease in visits compared with September 2018. - Approximately 36,000 fans saw LED ads and heard PSAs at two home games. - Game-day radio ads, social media ads on Facebook and Twitter, and Spanish-language digital ads on

⁸ <http://sjenvironment.org/medicine>

Program	Description / Status	Evaluation
	<p>out grease scrapers at an Earthquakes game in September 2019.</p>	<p>Univision's mobile platforms ran in September.</p> <ul style="list-style-type: none"> - The Quakes shared our campaign message via their Twitter and Instagram pages, garnering 6,446 impressions. - A booth opportunity at one of the Quakes home games led to engaging fans with a safe medicine disposal message and distributing business-card size flyers. <p><i>San José Sharks</i></p> <ul style="list-style-type: none"> - 8,828 visitors to the medicine page in October 2019. This represents an 82% increase in visits compared with October 2018. - Approximately 68,836 fans saw stadium ads at four home games in October 2019 with the message, "Meds in the bin, we all win" and the campaign's URL. - Digital ads on Facebook, Twitter and Google ran in October 2019, garnering 3,830,241 impressions and 15,994 link clicks. - VTA bus shelters with an ad promoting the campaign message and URL ran in October 2019. These received approximately 1,111,059 impressions. - Billboards with the safe medicine campaign message and featuring a Sharks player were placed around San José during October 2019, garnering approximately 3,453,594 impressions.
Other outreach	ESD highlighted the environmental impact of safe medicine disposal during Pollution Prevention Week and National Drug Take Back Day, in September and October 2019.	<ul style="list-style-type: none"> - DMV ad running Sept. 1, 2019 through October 2019, and in April 2020. The ad runs four times every hour at 2 DMV locations, or approximately

Program	Description / Status	Evaluation
	<p>A 30-second ad promoting safe medicine disposal using the "Don't rush to flush, protect the Bay" campaign slogan ran at the Senter Road and Santa Teresa DMV locations from Sept. 1 to Oct. 31. Advertising at DMV reaches a captive and diverse audience.</p> <p>During Pollution Prevention Week (Sept. 16-22, 2019) ESD placed 4 social media posts promoting the safe disposal of used and expired medicines.</p> <p>Radio ads in Spanish (36 total) and Vietnamese (90 total) with a safe medicine disposal message were produced and aired on KZSF 1370 Radio Kaliente and Vien Thao radio for the month of October 2019, coinciding with National Drug Takeback Day on Oct. 26.</p> <p>In addition, ESD tabled at the two most popular Vietnamese festivals at Eastridge Mall - Moon Festival in Sept. 2019 and Tet Festival in Jan. 2020 - to promote the safe disposal of medicine and HHW. These are considered the biggest Vietnamese events in the Bay Area with an estimate of 25,000 - 30,000 attendees.</p>	<p>5,760 times total. Garnering about 444,266 impressions.</p> <ul style="list-style-type: none"> - Social media posts during Pollution Prevention week resulted in 628 views of a safe medicine disposal video and 2,295 impressions. - Estimated 600-800 people stopped by at ESD tables at the Moon and Tet festival.

Criteria to Measure P2 Program Task Effectiveness

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

Influent and Biosolid Monitoring

The SJ-SC RWF, applying secondary 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 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 HHW services and quantity of material collected

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, toilet, or in the garbage. This presumption cannot be verified. On the other hand, HHW collection events highlight and advertise concerns about improper (e.g. toilet or kitchen sink) 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, indicates that people were messaged. However, simply counting the number of messages that were broadcast gives a sense of program size but tells very little about the effectiveness of the program. Effective messaging and advertising aim at selling a vision or emotion but is difficult to measure quantitatively. When possible, the City has begun tracking metrics like number of impressions (people exposed to digital ads) or visits (actual clicks on links) to web sites, so the baseline traffic can be compared to changes in number of visitors following a large outreach effort.

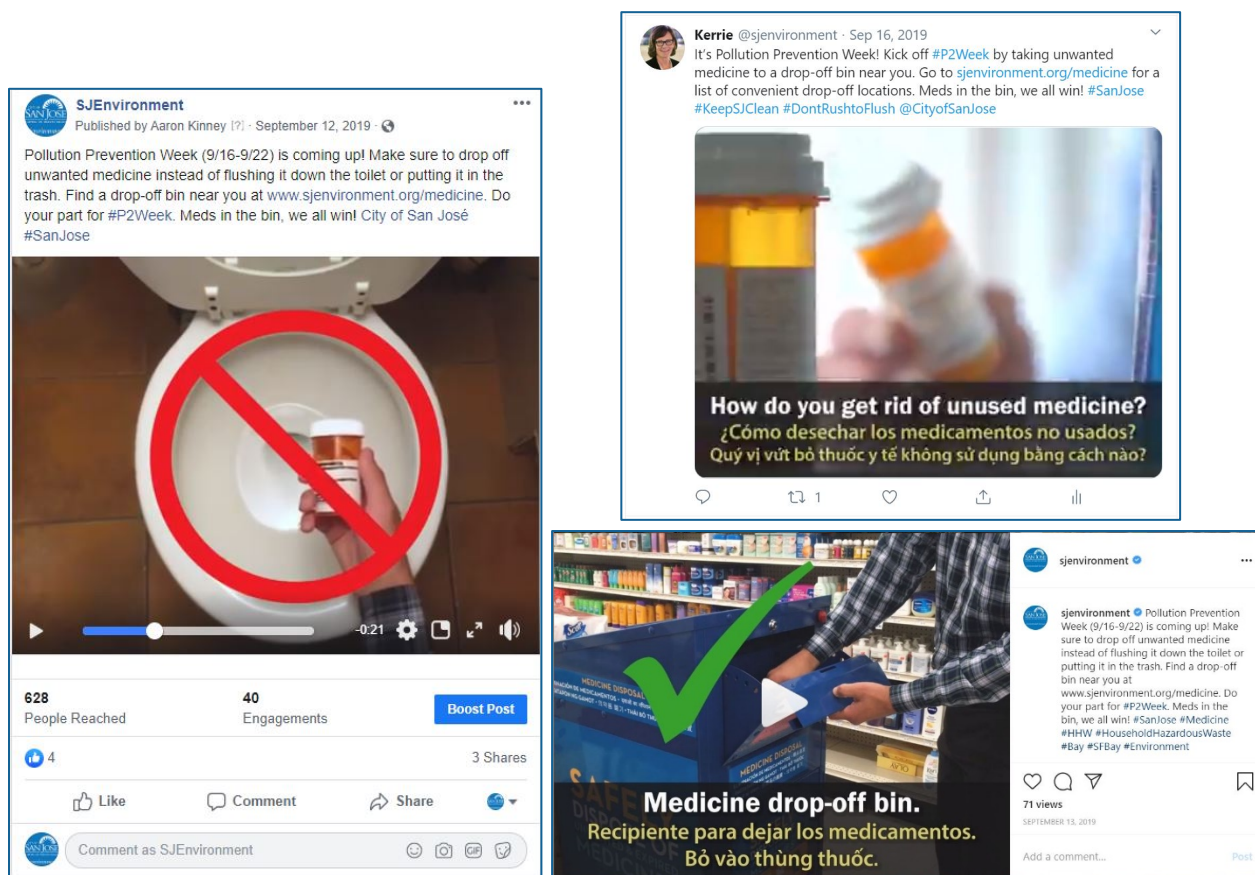


FIGURE 15. SOCIAL MEDIA MEDICINE BIN OUTREACH

SHOWING METRICS SUCH AS ENGAGEMENTS AND NUMBER OF PEOPLE REACHED

Pollutants of Concern Discussion

Mercury

Why selected

Mercury is a legacy pollutant for which TMDLs were developed and a Watershed Permit established limits. The Mercury Watershed Permit was first adopted in 2008. The permit was reissued in 2017 through Regional Board Order No. R2-2017-0041. The Mercury and PCBs Watershed Permit establishes mercury limits and pollution prevention triggers for the SJ-SC RWF.

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 SJ-SC RWF. 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.

Reduction efforts and progress

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 2019, concentrations of mercury in wastewater facility effluent were far below the mercury concentration limits and triggers set in the Watershed Permit, as detailed in Table 8 below.

TABLE 8. MERCURY WATERSHED PERMIT LIMITS AND RESULTS.

	Annual Load (kg/yr)	Monthly Concentration (µg/L)	Weekly Concentration (µg/L)	Daily Concentration (µg/L)
<i>Average Effluent Limits</i>	0.800	0.025	0.027	NA
<i>Triggers for Advanced Secondary Plants</i>	NA	0.011	NA	0.021
<i>2019 Maximum Results</i>	0.170	0.00234	NA	NA

Dental Mercury Amalgam Program

Wastewater compliance by dental practices is monitored through the SJ-SC RWF Dental Amalgam Program. Implementation of dental permitting and amalgam separator inspections began in 2009. Dental permits are reissued on a five-year cycle. There are currently 898 permitted dental practices in the program. The program has an extensive discharger identification program, which includes several methods for identifying new dental practices. The Dental Amalgam Program issued 17 new permits to dentists in the Tributary area in 2019.

The new Federal Dental Amalgam Rule was published in June 2017 and the City's existing Dental Amalgam Program will be updated for consistency with the rule's Sewer Use Ordinance. The new rule went into effect July 14, 2017 for new dental dischargers and will go into effect July 14, 2020 for existing dentists. The Dental Amalgam Program is working with dentists to help them comply with new requirements.

TABLE 9. DENTAL AMALGAM PROGRAM PERMITS ISSUED BY YEAR

	2015	2016	2017	2018	2019
<i>Total Issued</i>	828	820	844	856	898
<i>New permits</i>	34	37	48	32	17

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 BMPs, and annual report submission. Certifications of amalgam separator installation and BMP implementation have been received from 99% of dental practices. In 2019, oversight of dentists was focused on increased dental inspections and dental annual reports were not required for the 2018 calendar year. Dental Amalgam Program Annual Report Forms, BMPs, and amalgam separator certifications are available for download on the City of San José [website](#)⁹.

Inspections in 2019 verified that amalgam separators were installed at 99% of practices. The remaining 1% represents newly identified dental facilities. The program identified 68 violations by dental practices in 2019. The majority of these were amalgam separator maintenance infractions. All violations were enforced and resolved.

Permanent San José HHW facility

San José's permanent HHW facility began operations in September 2014. San José and several participating tributary area cities renewed three-year funding and participation agreements, from July 1, 2018 through June 30, 2021, to participate in the County HHW Program which serves residents and small businesses. The permanent facility provides pollution prevention outreach and collections year-round and in conjunction with holidays and special events.

⁹ <http://www.sanjoseca.gov/dental>

The San José facility receives HHW from residential drop-off appointments 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 the County and participating cities. The facility also provides drop-off appointments for CESQGs (small businesses) at a competitive fee according to quantity and material type.

Table 10 details the current mercury prevention plan for the SJ-SC RWF.

TABLE 10. 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 2019, a total of 898 permits were active. Issued new permits to 17 practices. 99% of practices certified for amalgam separators and are following Dental Amalgam BMPs. Completed 174 dental office inspections in 2019.
County of Santa Clara HHW Department of Consumer and Environmental Protection Agency, Household and Small Business Hazardous Waste program.	Continue support of the County Residential and Small Business Hazardous Waste Program. <ul style="list-style-type: none"> ▪ 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 hosted 10 temporary and 169 permanent residential hazardous waste drop-off events. County program also served 302 small business drop-offs including local governments, Goodwill Industries, Hope Services, and Salvation Army. In FY 18-19, HHW program recycled: 50 pounds of elemental mercury, 50,333 pounds of fluorescent lights, and 150,497 pounds of household batteries.
Dental Practice BMPs maintained on San José web site: <ul style="list-style-type: none"> - Dental Amalgam Program¹⁰ - BAPPG approved amalgam separators¹¹ 		

¹⁰ <http://www.sanjoseca.gov/dental>

¹¹ <https://www.sanjoseca.gov/home/showdocument?id=390>

Evaluation and effectiveness

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 (Figure 16).

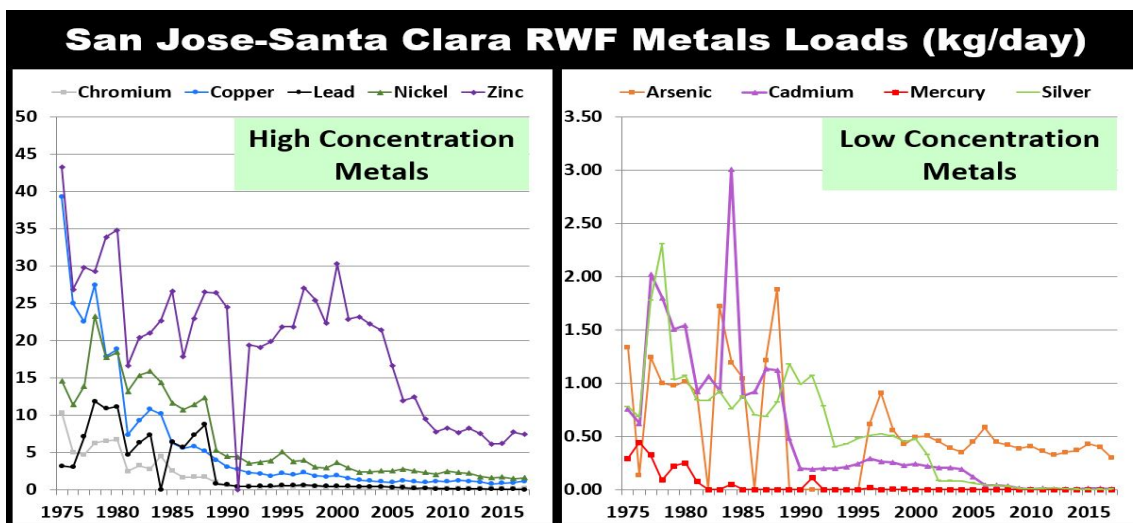


FIGURE 16. METALS LOADS (KG/DAY) FOR SJ-SC RWF

The facility continues to remove 98 to 99 percent of mercury from wastewater. In addition, total mercury load discharged to the sewer collection system continues to decrease (Figure 17). Most of the reduction is believed to be a result of changes in the dental industry.

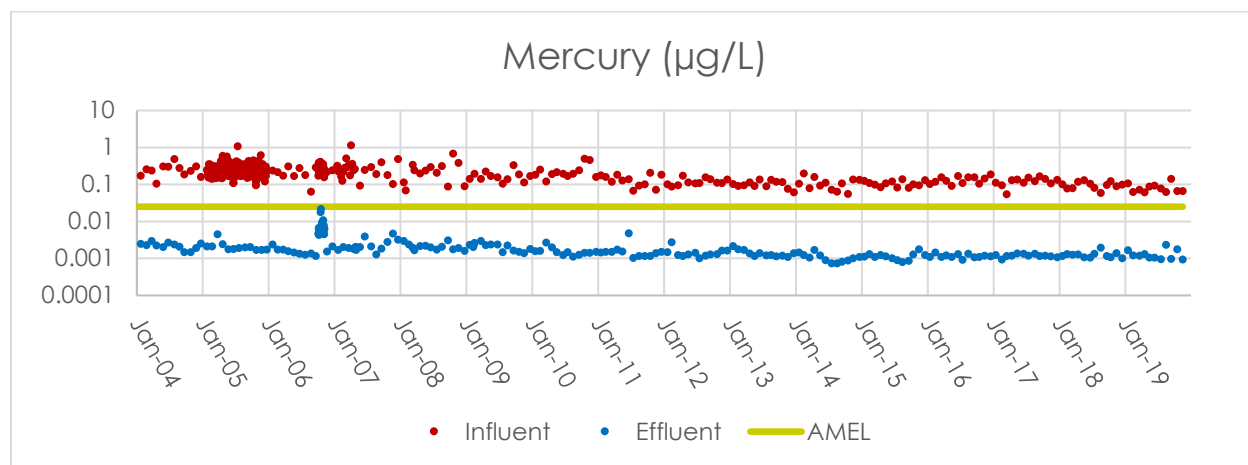


FIGURE 17. MERCURY REMOVAL PERFORMANCE 2004-2019

PCBs

Why selected

PCBs are legacy pollutants for which TMDLs were developed and a Watershed Permit established limits. The Mercury Watershed Permit was first adopted in 2008 with PCBs added in 2011. The permit was reissued in 2017 through Regional Board Order No. R2-2017-0041. The Mercury and PCBs Watershed Permit establishes PCBs limits and pollution prevention triggers for the SJ-SC RWF.

Sources

PCBs belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until manufacturing was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including:

- Electrical, heat transfer and hydraulic equipment
- Plasticizers in paints, plastics and rubber products
- Pigments, dyes and carbonless copy paper
- Other industrial applications¹²

Reduction efforts and progress

No PCBs have been detected at industrial facilities for well over a decade using detection Method 608.

The Pretreatment Program evaluates IUs every five years as part of the wastewater discharge permitting process and annually during compliance inspections. The permitting process requires IUs to disclose any Total Toxic Organics (TTOs) maintained onsite, including PCBs. The Pretreatment Program samples for TTOs semi-annually, including PCBs, if TTOs are known or suspected at an IU. The Pretreatment Program further requires any known or suspected IUs to either conduct analysis for TTOs or certify that a plan is in place to manage TTOs to prevent discharge to the sanitary sewer.

Evaluation and effectiveness

PCBs are not detected in the SJ-SC RWF influent or effluent using standard detection methods (Method 608).

The SJ-SC RWF is also required to measure total PCBs by congener quarterly, using USEPA Proposed Method 1668c, for information only. Since April 2011, only four of 33 sampling events have quantified any PCBs congeners (Figure 18).

¹² <https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs>

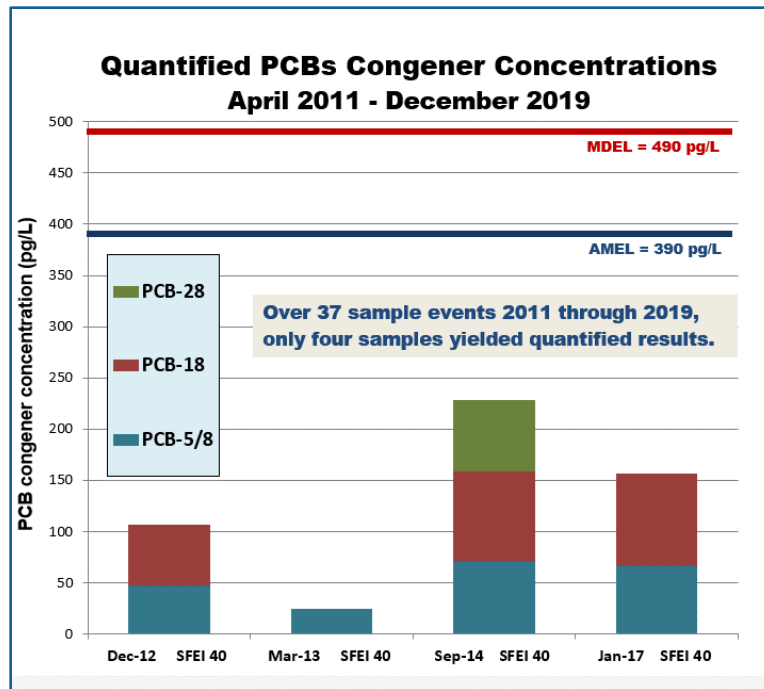


FIGURE 18 PROPOSED METHOD 1668C

(FOR INFORMATION ONLY) QUANTIFIED RESULTS FROM 2011-2019

Copper

Why selected

Copper is a pollutant 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 $\mu\text{g/L}$, respectively.

Sources

Until the 1990s, industry contributed a third of total copper load arriving at the SJ-SC RWF. Between 1993 and 2004, industrial copper fell dramatically from its previous average daily load. 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%. Most of the copper load that persists in wastewater today comes from the slow corrosion of copper pipe in homes and businesses, but copper is also used as a pesticide in swimming pools, spas, and incorporated into fabrics.

Reduction efforts and progress

The current copper load to SJ-SC RWF is small and does not pose a threat to receiving waters given the effectiveness of the SJ-SC RWF at copper removal (97%). In the SJ-SC RWF service area, the main water wholesaler is the SCVWD. 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 Sustainability and Compliance team if overall sanitary sewage copper concentrations appear to be rising unexpectedly. The Sustainability and Compliance team can monitor this at the SJ-SC RWF and if necessary contact the Water District.

SJ-SC RWF Pretreatment 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. The overall industrial copper loading remained basically unchanged at 3.94 lbs/day in 2019. (Figure 19).

In addition the City participates in BAPPG, which in collaboration with BACWA and BASMAA, maintains a [website](https://baywise.org/)¹³ with copper resources for plumbing and pools.

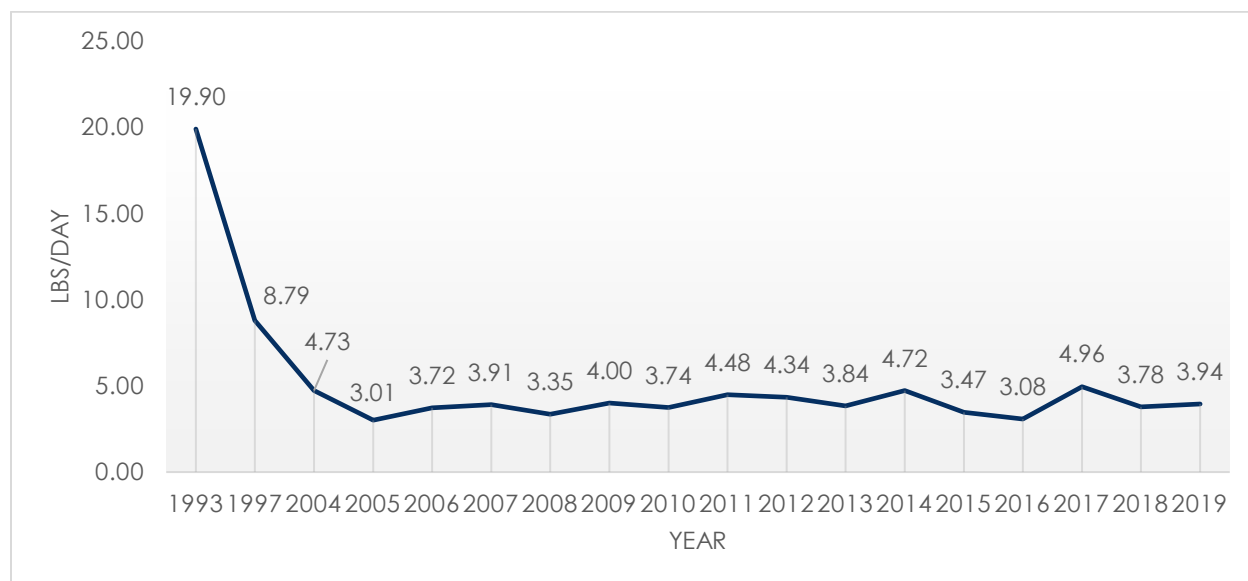


FIGURE 19. AVERAGE COPPER INDUSTRIAL LOADING PER WORKDAY

Table 11 details the current SJ-SC RWF copper prevention efforts.

¹³ <https://baywise.org/>

TABLE 11. 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. Baywise/BAPPG to communicate copper pipe corrosion message to plumbing unions, contractors, building inspectors, and colleges.	Baywise/BAPPG maintained copper pipe fact sheet and has plans to update plumbing messages and copper source analysis in the future. Disconnect between BMPs and accepted practice discovered in 2013: BMPs remain under review.
Industrial Waste Distribute BMPs to industrial metal finishers & printed circuit board manufacturers.	Distribution of Guidelines for Industrial Wastewater Reuse by City website.	Update and maintain Guidelines for Industrial Wastewater Reuse on City website.
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 17 brochures in 2019.
SJ-SC RWF SJ-SC RWF influent and effluent copper.	Monitor copper in wastewater facility influent & effluent monthly.	Copper concentration in Facility effluent lowered slightly to 2.61 µg/l.
Copper BMPs maintained on San José web site: Cooling Towers ¹⁴ Roof Runoff Factsheet ¹⁵ Guidelines for Industrial Water Reuse ¹⁶ Draining Pools and Spas brochure ¹⁷ Pools ¹⁸ Car Washing brochure ¹⁹ Baywise/BAPPG resources ²⁰		

Evaluation and effectiveness

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 BNR. Today, the facility removes 97 percent of wastewater copper (Table 12).

¹⁴ <https://www.sanjoseca.gov/residents/advanced-components/list-detail-pages/document-folder/-folder-3048>

¹⁵ <https://www.sanjoseca.gov/home/showdocument?id=37097>

¹⁶ <https://www.sanjoseca.gov/Home/ShowDocument?id=37059>

¹⁷ <https://www.sanjoseca.gov/home/showdocument?id=1228>

¹⁸ <https://www.sanjoseca.gov/your-government/environment/our-creeks-rivers-bay/preventing-water-pollution/pools>

¹⁹ <https://www.sanjoseca.gov/home/showdocument?id=37099>

²⁰ <https://baywise.org/business/plumbing-resources/>

TABLE 12. COPPER REMOVAL PERFORMANCE 2017-2019

Year	Influent			Effluent			Removal
	Low	High	Average	Low	High	Average	
2017	104	178	142	2.17	3.85	3.16	98%
2018	94	138	118	2.04	3.12	3.03	98%
2019	58	94	81	2.11	2.82	2.36	97%

Special provisions – Copper Action Plan

SJ-SC RWF Permit Provision VI.C.5.c. "Copper Action Plan," requires the SJ-SC RWF to implement a copper control program. Table 13 details and evaluates the current copper action plan for the SJ-SC RWF.

TABLE 13. 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 consist, 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 BMPs that minimize copper discharges.

Cyanide

Why selected

Cyanide is a pollutant for which BPAs for the Bay have been established. 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.

Sources

The facility disinfection process is the main source of the small concentration of cyanide that is discharged. SJ-SC RWF, and many other wastewater treatment plants, produce a small amount of cyanide from chloramination disinfection, a standard disinfection byproduct. Cyanide is used in industrial electroplating operations and this is the only potentially significant source in the service area.

Reduction efforts and progress

Inspection and surveillance efforts are an integrated part of all inspections and monitoring of industrial users that have cyanide in their processes or are potential cyanide contributors as described in the Cyanide Action Plan. Cyanide concentrations in influent

have been consistently below detection levels so additional reduction efforts do not appear to be needed at this time.

Cyanide influent concentration levels have typically remained at or below quantified levels of detection (3 ppb) since November 2005 and remained below quantified levels of detection in 2019. Detected, but not quantified, values average between 0.9 and 1.6 µg/l (Table 15).

Table 14 details the current SJ-SC RWF efforts to reduce and prevent cyanide.

TABLE 14. 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 80 facilities at least semiannually that potentially use cyanide.
	Surveillance and monitoring of IUs with cyanide processes.	Surveillance and monitoring of industrial discharges and facility influent to detect cyanide.	Four 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.	Update and maintain Cyanide fact sheet and distribute as needed.
SJ-SC RWF effluent	Monitor cyanide in wastewater facility effluent monthly.	SJ-SC RWF effluent below discharge permit limits: 5.7 µg/l AMEL, 14 µg/l MDEL.	During 2019, effluent concentrations were well below reporting limit of 3 ppb.

Evaluation and effectiveness

The cyanide concentration increases from zero to about 0.9 µg/L as a byproduct from the SJ-SC RWF's disinfection process (Table 15).

TABLE 15. CYANIDE INFLUENT AND EFFLUENT LEVELS 2017-2019.

Year	Influent			Effluent			Removal
	Low	High	Average	Low	High	Average	
2017	0.8(ND)	4.8	1.6	0.8(ND)	1.9(DNQ)	1.1	N/A
2018	0.9(ND)	1.8(DNQ)	1.6	0.9(ND)	1.3(DNQ)	1.0	N/A
2019	0.9(ND)	2.0(DNQ)	1.1	0.9(ND)	2.0(DNQ)	1.0	N/A

Special provisions – Cyanide action plan

SJ-SC RWF Permit Provision VI.C.5.d. "Cyanide Action Plan," requires implementation of a cyanide control program. Table 16 details and evaluates the current cyanide action plan for the SJ-SC RWF.

TABLE 16. 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)


Pesticides

Pesticides

Why selected

Pesticides by design are toxic chemicals, the vast majority of which adversely affect human health and the environment around the world. Many are considered persistent organic pollutants (POPs), lingering for long periods of time in the environment while bioaccumulating throughout the food chain. In addition, pesticides which are

EFFECTIVE ECO-FRIENDLY PEST CONTROL • LESS-TOXIC PRODUCTS



PESTICIDE

USE AND DISPOSAL

Pesticides can cause problems for our health and the environment even when applied according to label directions. Pesticides sprayed outdoors to kill insect pests or control weeds make their way into our waterways. Very small amounts of pesticides can be lethal to marine life, birds, and other life forms.

This is why water pollution prevention agencies in charge of our municipal storm drain systems and wastewater treatment plants support "integrated pest management" (IPM), a strategy that aims to prevent pests and their damage long-term, using a combination of least-toxic techniques. Pest control materials are applied in a manner that minimizes risk to human health, beneficial and non-target organisms.

When you choose pest control products, choose types that are less risky for people, pets, and the environment.

- Traps are non-toxic.
- Enclosed baits offer the lowest exposure to pesticides.
- Horticultural oils and insecticidal soaps are examples of less-toxic pesticides, although both will kill pollinators and natural enemies on contact.

FIGURE 20. SCVURPPP OWOW OUTREACH COLLATERAL ON PESTICIDE USE

resistant to biotic/abiotic breakdown can be transported via water, affecting people and wildlife far from where they are released.²¹

Sources

Pesticides can enter SJ-SC RWF 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.

Reduction efforts and progress

Most pesticide pollution prevention efforts are implemented under the Municipal Regional Stormwater NPDES Permit (Stormwater Permit). Program BMPs for pesticide management include significant education and outreach efforts to residents, businesses, pest control professionals, and municipal staff to promote behavior changes relative to pesticide use and less toxic pest control methods. [Annual Stormwater Reports](#)²² are available online at the SCVURPPP website.

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 pollution prevention programs like BAPPG, BASMAA, and SCVURPPP. SCVURPPP leads the County-wide pesticide outreach effort through *Watershed Watch Campaign* and the *OWOW*.

In FY18-19, the Watershed Watch outreach effort completed 19 years of implementation and included TV and radio ads, collateral and displays, as well as online digital media. The Watershed Watch Campaign included 951 total spots on IPM topics, including 256 spots on hiring an eco-friendly pest control professional, and 237 spots on the Santa Clara Valley Green Gardener program. The Program also developed a new 30-second graphic animation advertisement in English and Spanish. The advertisement posted on the [Watershed Watch website](#)²³ home page. The ad focuses on cigarette litter pollution prevention.

Table 17 details the current SJ-SC RWF efforts and progress to reduce and prevent pesticide pollution.

TABLE 17. PESTICIDES PREVENTION PLAN

Message / Program	Implementation & Timeline	Evaluation
Commercial		
Distribute to business audiences, "Hiring a Company that Can Prevent Pest	Distribute to business audiences, "Hiring a Company that Can	Distribute to business audiences, "Hiring a Company that Can

²¹ <https://www.epa.gov/international-cooperation/persistent-organic-pollutants-global-issue-global-response>

²² http://www.scvurppp-w2k.com/ar_wp.shtml

²³ www.MyWatershedWatch.org

Message / Program	Implementation & Timeline	Evaluation
Problems" residential fact sheet.	Prevent Pest Problems" residential fact sheet.	Prevent Pest Problems" residential fact sheet.
Residential – Home Use & Disposal		
Advertise means of safe pesticide disposal on the City's website and HHW program public education and outreach.	Advertise HHW availability for disposal of waste pesticides. Provide disposal service. Collect pesticides and poisons.	Santa Clara County HHW Program served 35,452 appointments in FY 18-19 with no wait and no refusals. 202,700 pounds of poisonous liquids and 140,000 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 training sessions on relevant IPM topics for all City employees that apply pesticides. Target: 100% of applicable employees receive training during a three-year cycle. Continue additional IPM training of appropriate San José Staff for non-chemical strategies to test in approximately 65 San José parks and municipal facilities. Staff will be engaged in training opportunities and lessons learned from pilot testing new alternatives.	169 San José muni staff were trained on the City's IPM Policy, SOPs, and BMPs during the Annual Worker Safety Training and special team-specific outreach training sessions, representing 100% coverage for applicable employees. Municipal staff received additional training on proactive management and pesticide application equipment calibration, gopher and ground squirrel management options, and chemical and non-chemical alternatives to weed control. Staff removed invasive weeds and plants using cultural and mechanical methods, mulching, permeable grout, and other non-chemical strategies, including goats and sheep. The City utilized Barn own nest boxes for small rodent population control in 13 parks, 2 community gardens, a public high school, and at the Regional Wastewater Facility.

Evaluation and effectiveness

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.

FOG

Why selected

FOG is produced from food manufacturing as well as residential, commercial, industrial, and institutional food preparation. FOG clings to sewer pipes and causes clogs and sewer backups.

In 2006, the State Water Resources Control Board (SWRCB) issued Order No. 2006-003-DWQ: Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (GWDR), applicable to all California collection systems (with more than one mile of sewer), including the City of San José and the collection systems owned and operated by its neighboring tributary agencies. The GWDR prohibited Sanitary Sewer Overflows (SSOs), detailed SSO reporting requirements (which were updated with the issuance of the Revised Monitoring and Reporting Program, Order WQ 2013-0058-EXEC), and reiterated the requirement to develop and implement a Sewer System Management Plan (SSMP) that included provisions for FOG control. The GWDR does not specify what the FOG control program must include nor how it is to be implemented. In fact, the GWDR may not require a FOG control program at all if it can be adequately demonstrated that FOG is not a problem for an individual collection system. This is not the case in San José's collection system. Instead, the GWDR allows flexibility for collection system agencies to build and implement an effective FOG Control Program that addresses the specific needs of their collection system.

Sources

FOG-laden wastewater is discharged from a variety of residential, commercial, industrial, and institutional sources throughout the SJ-SC RWF service area. FOG source control efforts have been implemented in the commercial, industrial, and institutional sectors to capture and divert much of the FOG away from the collection system and the SJ-SC RWF. FOG is a pollutant of concern due to its impact on the sanitary sewer collection system.

Reduction efforts and progress

FOG source control efforts have been implemented in the commercial, industrial, and institutional sectors to capture and divert much of the FOG away from the collection system and the SJ-SC RWF.

The FOG section of the City's SSMP, which was updated in 2019, describes seven elements of the City's FOG program as required by the GWDR (Table 18).

TABLE 18. 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 enough 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.

Within the City of San José, the City'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 SSOs. Since December 2004, the City has been reporting all overflows into a publicly accessible statewide electronic database in accordance to applicable Water Board directives. The reports include the location, time, volume, and cause of the overflows, as well as the volume, if any, that was not recovered during the cleanup. There were 38 SSOs reported during 2019, which is first time in nine years that the number of SSOs increased over the previous year (Figure 21).

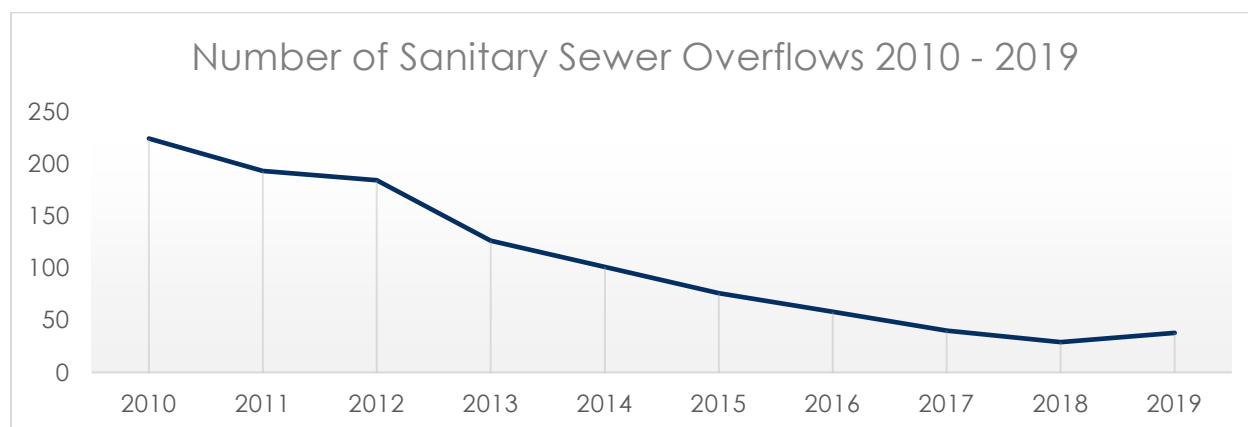


FIGURE 21. NUMBER OF SSOs IN SAN JOSÉ YEARS 2010-2019

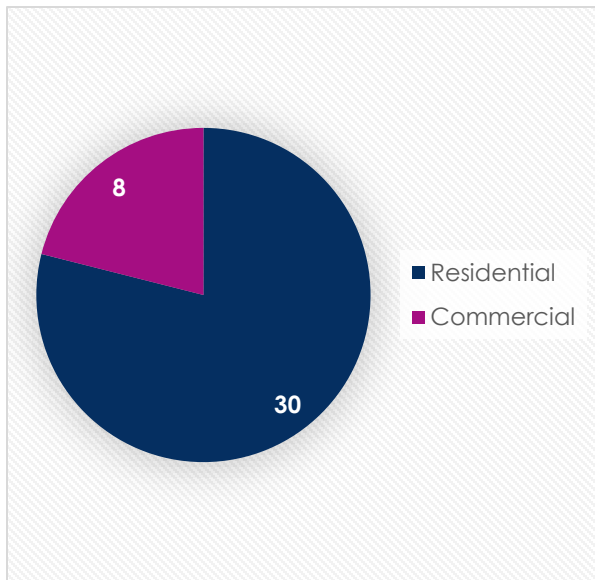


FIGURE 22. SSOs IN THE SAN JOSÉ COLLECTION SYSTEM IN 2019 BY SECTOR

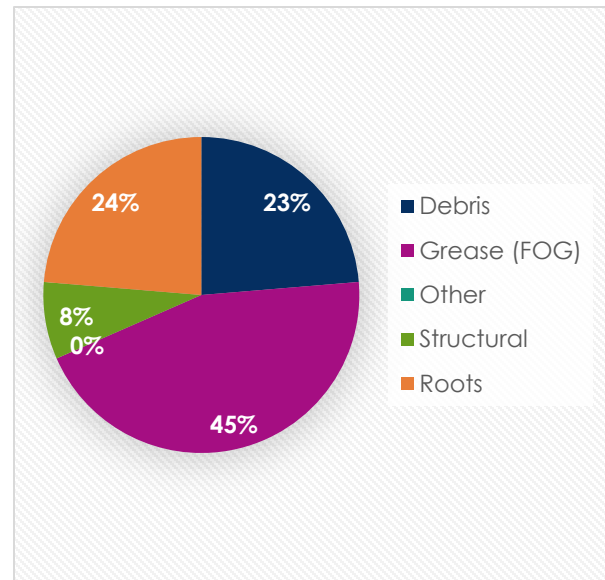


FIGURE 23. NUMBER AND CAUSE OF SSOs IN THE SAN JOSÉ COLLECTION SYSTEM IN 2019

Of the 38 SSOs, 30 were in Residential areas and eight were in Commercial areas (Figure 22). City sewer crews identified 17 (45%) with grease as the contributing cause. Fifteen of the 30 Residential SSOs were caused by FOG, and two of the eight Commercial SSOs were FOG-related (Figure 23). When an overflow or significant blockage occurs in a predominantly residential area, and grease is determined to be the primary cause, City Sewer crews distribute door hangers in the area (Figure 25), to educate residents about the impacts of grease in the sewer and to inform them of alternative disposal methods. At least 8,208 doorhangers were distributed in 2019.



FIGURE 24. #FOGWASTE EDUCATIONAL DOOR HANGERS

San José's DOT has made significant adjustments to the implementation of the SSMP, changing the City's stance from reactive to proactive in how it manages the sanitary sewer collection system. These changes aimed to reduce the total SSOs, total volume of waste spilled during SSO events, and response time to SSOs. Since 2010, San José reduced the number of SSOs from approximately 9.5 per 100 miles of sanitary sewer line to 1.1 SSOs per 100 miles of sanitary sewer lines. In 2019, the City revised and updated its SSMP, which details the City's organization, legal authority, overflow emergency response, FOG Control, and other key elements of the collection system maintenance and operations procedures. Regular review and revisions are required by the GWDR, and the 2019 version supersedes the previous 2014 version.

GCD Sizing and Plan Check Review

In late 2016 the City hired EEC Environmental to develop guidance documentation for sizing GCDs based on the latest version of the Uniform Plumbing Code. The guidance includes identification of the fixtures and drains that are to connect to grease interceptors at FSEs as well as assignment of the appropriate number of drainage fixture units (DFUs) for each fixture/drain, which factors into interceptor sizing. The guidance also includes discussion on the circumstances when a hydromechanical grease interceptor (HGI) can be a suitable alternative to a gravity grease interceptor (GGI). The purpose of this documentation was to modernize the criteria used for sizing GCDs while still complying with County Health requirements and providing adequate protection for the collection system. San José staff began using this new guidance documents for GCD sizing in June 2017.

San José also transitioned plan check review responsibility from Environmental Services to the City's Building Division in July 2017. The Building Division already performed all plumbing and other plan review and permitting duties, so this move streamlined the entire plan review process for FSEs. Building Division staff performed 48 grease control plan check reviews in 2019. In addition, in



FIGURE 25. #FOGWASTE MESSAGING ON CITY MAINTENANCE TRUCKS

the City of Santa Clara, from July 1, 2018 through June 30, 2019, 142 grease control plan check reviews were completed.

Commercial FOG Control Inspections

The Commercial FSE Inspection Program in San José prioritizes FSE inspections based upon whether a site is grease producing, has adequate pretreatment, the likelihood of an SSO to occur in that area, and the potential for the site to generate grease. This approach increases inspection frequencies at locations most likely to cause or contribute to blockages and/or SSOs in the San José sanitary sewer collection system.



FIGURE 26. ENVIRONMENTAL INSPECTOR TAKING A CORE SAMPLE FROM A GREASE TRAP

FSEs are inspected by San José staff for compliance with applicable Municipal Codes and BMPs related to grease management and grease removal device maintenance. In FY 18-19, 803 FSEs were inspected in San José. FSEs in San José with GCDs installed onsite also receive separate GCD inspections. GCD inspections differ from FSE inspections in that they are wholly focused on the condition and functionality of the GCD. The inspector checks the structural integrity of the GCD and takes a core sample to assess the FOG and solids loading in the device (Figure 26). In FY 18-19, 1,283 GCDs were inspected (up from 1,038 in FY 17-18).

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 have been developed and translated into multiple languages to assist with education efforts. In FY 18-19, more than 994 educational pieces were distributed during FSE inspections to help FSE operators achieve and maintain compliance.

Enforcement actions are taken against any FSE that does not clean their GCDs at the minimum frequency, fails to keep records documenting the cleaning, and/or other pertinent FOG violations. Facilities found to have violations are re-inspected and enforcements are escalated until all violations are corrected. In FY 18-19, 401 of the 803 FSEs inspected had one or more violations (50%, down from 65% in FY 17-18). A total of 520 discrete violations were documented (down from 727 in FY 17-18). Inspectors issued 305 Official Warning



FIGURE 27. INSPECTING A COMMERCIAL GREASE INTERCEPTOR

Notices (down from 355 in FY 17-18), five Compliance Meetings (up from two in FY 17-18), and 68 Administrative Citations (up from 44 in FY 17-18).

Inspection staff from the FSE Inspection Program respond to reports of grease blockages in the sanitary sewer in San José. These grease investigations involve inspecting FSEs near affected sewer lines for compliance with code requirements for GCD installation and maintenance. Corrective actions are taken as needed to bring facilities into compliance and to minimize grease discharges to the collection system. In FY 18-19, the City performed eight grease investigations involving 18 facilities, with 33 inspections conducted as part of these grease investigations. Sixteen violations were documented, and five Official Warning Notices were issued. Education is also an important component of grease investigations, with 29 FOG-related educational materials distributed as part of the grease investigations (Figure 28). In addition, the City of Santa Clara performed, from July 1, 2018 through June 30, 2019, 276 FOG inspections. They also performed 11 investigations because of referrals of excessive grease in the sewer from wastewater field maintenance crews.

FIGURE 28. ENGLISH, SPANISH, AND VIETNAMESE FOG COLLATERAL

FOG Digital Compliance Pilot

The San José Municipal Code (SJMC) requires FSEs to regularly maintain their GCDs by hiring a State-licensed Inedible Kitchen Grease Hauler and/or self-cleaning their GCD. SJMC also requires FSEs to keep 3 years of GCD maintenance records on-site and

available for inspection. These records demonstrate that their GCD is being maintained and the working status of the device. Proper working status is required to prevent FOG from entering the City's sanitary sewer system.

Because records are an important compliance tool, and since records-related violations represent the majority of violations documented by Inspectors, the City is piloting a new system for recordkeeping. This Digital Compliance system is a cloud-based platform that stores records and notifies enrolled FSEs of records submittal deadlines, GCD service intervals, and the like to ensure compliance with the SJMC requirements.

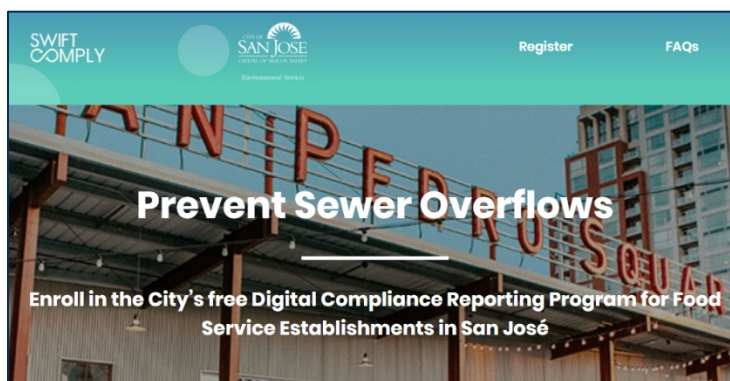


FIGURE 29. SAN JOSÉ'S DIGITAL COMPLIANCE PILOT

In September 2019 San José launched this free online reporting system for GCD maintenance records. All San José FSEs with grease control devices are encouraged to enroll and start uploading maintenance records to the [website](#)²⁴. San José has approximately 2,400 FSEs with GCDs and hopes to have half of these facilities using the online system by the end of the two-year pilot.

Evaluation and effectiveness

Table 19 details the current SJ-SC RWF efforts and progress to reduce and prevent FOG pollution.

TABLE 19. FOG SUMMARY

Message / Program	Implementation & Timeline	Evaluation
Commercial Food Preparation		
Implement FOG Food Service Facility inspections as required in SSMP.	Conduct FOG and GCD Inspections at FSEs in San José.	Conducted 803 FOG Inspections and 1,283 GCD Inspections in FY 18-19
Distribute grease management information to inspected restaurants and FOG generators.	Educate food service owners/operators on FOG BMPs during inspections.	994 educational pieces distributed during FSE inspections, and 29 educational pieces distributed during Grease Investigation inspections in FY 18-19

²⁴ www.swiftcomply.com/sanjose

Message / Program	Implementation & Timeline	Evaluation
Inspect FSEs in response to DOT 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, as needed.	City of San José in 2019 <ul style="list-style-type: none"> - Investigated 8 grease complaints, involving 18 facilities. - 33 inspections conducted. - 16 violations documented. 5 OWNs were issued. - 29 educational materials distributed during investigations City of Santa Clara, from July 1, 2018 through June 30, 2019 <ul style="list-style-type: none"> - 276 FOG inspections conducted. - 11 total grease investigations conducted.
Requirement to install GCDs (such as traps or interceptors) at Commercial, Industrial, and Institutional FSEs	Plan checks for new and remodeled food service facilities to GCDs	City of San José in 2019 <ul style="list-style-type: none"> - Building Division now does all GCD sizing review as part of their overall Plan Check process. 48 grease control plan check reviews performed in 2019. City of Santa Clara, from July 1, 2018 through June 30, 2019 <ul style="list-style-type: none"> - 142 FOG plan reviews were completed.
Residential		
Educate residents about preventing grease blockages through BAPPG Spanish radio ad campaign.	Participate in grease message delivery through BACWA and BAPPG.	Promoted FOG Holiday outreach messages of proper grease control to the South Bay, East Bay, and North Bay through Univision Hispanic Radio, KBRG, with Calls to action to visit Baywise.org. 63 total Spanish radio spots aired.
Respond to grease related sewer overflow complaints (DOT).	Percent of reported blockages attributed to FOG. Notify residents via door hangers when grease-related overflows occur in residential areas.	38 overflows in 2019 with 30 in residential areas, 8 in Commercial areas. 17 had FOG as a contributing factor, 15 in residential areas and 2 in commercial areas. DOT distributed FOG art door hangers in neighborhoods where residential grease blockages occurred. A total of at least 8,208 doorhangers were distributed in 2019. Promoted notifying DOT when SSOs are spotted on Social Media.
FOG Art	Continue utilizing FOG art education campaign collateral materials.	Vector trucks continue to display FOG Art messages. DOT distributed FOG art door hangers in neighborhoods where residential grease blockages occurred. A total of at least 8,208 doorhangers were distributed in 2019.

Future efforts

Emerging Contaminants

The 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 RMP.

Emerging Contaminant Investigations in 2019

Recent studies with the RMP focused on microplastics, pharmaceuticals, per- and poly-fluorinated compounds (PFASs), siloxanes, and rare earth elements. In 2018, the SJ-SC RWF, through ongoing collaborations with the RMP, performed investigations of emerging contaminants, including new sampling of influent and effluent for siloxanes and rare earth elements. RMP Emerging Contaminants workgroup summarizes the 2018 strategy by discussing contaminants that have had significant changes to their tiered framework approach since 2017. This is the most recent update to the strategy, and the summary and discussion can be found in the [Contaminants of Emerging Concern in San Francisco Bay: A Strategy for Future Investigations 2018 Update](#).

Microplastics

Previous microplastics monitoring generated significant public attention, which led to the creation of an RMP microplastics workgroup, first convened as a workshop in June 2016 and held annually since then. Microplastics workgroup meetings are hosted by the RMP and attended by various stakeholders, including San José. The SJ-SC RWF has been an active collaborator and contributor to the microplastic workgroup, providing input and advice on study design and scope, and review of results and reports. A follow-up investigation of microplastics, conducted in 2017, included additional sampling of SJ-SC RWF effluent. City staff participated in the May 2019 workgroup meeting.

In October 2019, RMP microplastics work, supported via a grant from the Moore Foundation, produced a [paper](#)²⁵ summarizing results of a three year comprehensive study of microplastics in the SF Bay. Also in October, City staff attended the [Microplastics](#)



FIGURE 30. FROM RMP COLLATERAL: MICROPLASTIC CONTAMINATION IN SAN FRANCISCO BAY

²⁵ https://www.sfei.org/sites/default/files/biblio_files/Microplastic%20Levels%20in%20SF%20Bay%20-%20Final%20Report.pdf

[Symposium](#)²⁶ which summarized results of the study and presented potential solutions. Finally, in December, the RMP published a [Microplastic Strategy Update](#)²⁷ which summarizes recent findings and adjusts future monitoring directions based on the findings.

Safe Medicine Disposal

The City participated in three types of activities that involve safe medicine disposal:

- Countywide HHW Program: For FY 18-19, 6,687 pounds of medications were collected through this program. Participation in the countywide HHW Program is described in greater detail in the Pollution Prevention Outreach and Services section that follows.
- Police Departments of San José, Santa Clara, Los Gatos, and Milpitas regularly participate in DEA National Prescription Drug Take-Back Day events. Local police departments supervised pharmaceutical take back at approximately 8 locations in Santa Clara County during [events held on April 27, 2019](#)²⁸

In June 2015, the City began participating with the SCVWD, on a three-year grant, in partnership with the CPSC and the County Department of Environmental Health's HHW Program with the City contributing funds for 10 bins in City of San José. As planned, the pilot program transitioned to the pharmaceutical industry supported MED-Project in June 2017 as required by the County pharmaceuticals take-back ordinance for drop-off bins and mail-back services. As of April 2019, there were over ninety pharmaceutical take-



FIGURE 31. SAFE MEDICINE DISPOSAL ADVERTISING DEVELOPED BY THE CITY OF SAN JOSÉ

²⁶ <https://www.sfei.org/projects/microplastics#sthash.rw3VL0tm.dpbs>

²⁷ https://www.sfei.org/sites/default/files/biblio_files/Microplastic%20Strategy%20Update%2012-2-2019_DL.pdf

²⁸ <https://www.sjpd.org/inews/viewpressrelease.asp?ID=2812>

back bins available countywide that collected 26,333 lbs of pharmaceuticals and 3,860 mail-back containers were distributed.

- Information on safe medicine disposal can be found at the [Santa Clara County Medical Waste Management Program webpage](#)²⁹
- Locations of current drop-off boxes and mail-back package distribution sites are on the [MED-Project website](#)³⁰

PFOS, PFOA and long-chain carboxylates, and other PFASs

The RMP has monitored PFASs in a variety of matrices for more than a decade with the SJ-SC RWF supporting this work through periodic review of monitoring approaches, work products, and providing wastewater samples when requested. PFASs are widely detected in San Francisco Bay matrices including water and sediment, and many have little available toxicity data. Recent monitoring suggests decreases in PFOS concentrations, likely because of changing use patterns that include the nationwide phase-out in 2002. However, concentrations of some of the other 10 members of the PFAS family, such as PFOA, have remained relatively constant, albeit it at substantially lower levels overall.

SWRCB reporting on PFAs is expected to begin in spring 2020, with a focus on drinking water standards. However, biosolids are also being considered and could be included in reporting efforts.

Flea and Tick Control

Fipronil and imidacloprid are chemicals commonly found in flea and tick treatments. The California Department of Pesticide Regulation is currently reviewing the use of these chemicals over potential human health risks. Unlike other pesticides (see “Pesticides” on page 36), these chemicals cannot be completely removed at wastewater treatment facilities such as the SJ-SC RWF. This means that these chemicals are discharged into our creeks, rivers and San Francisco Bay. These pesticides can accumulate at concentrations that are toxic to sensitive aquatic species. Through the City's partnership with BAPPG, information, messaging, and collateral regarding the use of oral flea and tick preventatives were developed in 2019 (Figure 32).



FIGURE 32. FLEA AND TICK MESSAGING DEVELOPED BY BAPPG

In 2019 information was included onto the City's [Preventing Water Pollution](#)³¹ page and additional information can be found on the at

²⁹ <https://www.sccgov.org/sites/swp/programs/mw/Pages/mwm.aspx>

³⁰ <https://med-project.org/locations/santa-clara/>

³¹ <https://www.sanjoseca.gov/your-government/environment/our-creeks-rivers-bay/preventing-water-pollution#Pet%20Flea%20Treatment>

the BAPPG-related website baywise.org³².

Emerging Contaminant Investigations planned

Based on past studies conducted from 2008 – 2019 and increasing efforts from the RMP, the SJ-SC RWF plans to conduct or support several investigations focused on increasing our understanding of CECs in 2019. These planned studies include:

- 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,
- Additional monitoring of other CECs as identified and prioritized through the RMP Emerging Contaminant Workgroup.

TABLE 20. EMERGING CONTAMINANT PLAN

Message / Program	Implementation & Timeline	Evaluation
<p>Unwanted Medications</p> <p>Do not flush unwanted medicine down the toilet or sink or put in trash.</p> <p>Bring in unwanted medicine for proper disposal.</p> <p>Support the collection of unwanted and expired pharmaceuticals.</p>	<p>Track pounds of medications collected by HHW and City initiatives.</p> <p>Continue to collect pharmaceuticals at industry managed MED-Project collection program for the County. Over 90 bins were installed by April 2019.</p>	<p>Local police departments participated in DEA National Prescription Drug Take-Back Day events on April 27, 2019. Pharmaceuticals were received at approximately 8 service area locations during the event.</p> <p>In June 2017, industry-managed MED-Project installed take-back per the countywide pharmaceuticals extended producer responsibility ordinance. MED-Project has taken over all collection locations and added additional sites. MED-Project has collected 26,333 lbs of pharmaceuticals and 3,860 mail-back containers had been distributed as of April 2019.</p>
<p>Santa Clara County HHW program</p> <p>The City continues to provide ongoing residential outreach to promote HHW program.</p>	<p>City agreement to participate in countywide HHW Program and for County to operate the San José HHW facility continues through June 2021.</p>	<p>2018: City of San José and other participating cities signed 3-year funding and cooperative agreements with the County to participate in the countywide program; County will operate the San José permanent HHW facility as part of program.</p> <p>FY 18-19: County HHW facility served 35,452 appointments and safely managed 2,749,240 pounds of hazardous waste:</p>

³² <https://baywise.org/residential/pets/>

Message / Program	Implementation & Timeline	Evaluation
		<p>- 6,687 pounds of unwanted or expired medications collected.</p> <p>- 7,416 pounds of used sharps managed.</p>
<p>Flea and tick Switch from spot-on treatments to chewables or tablets.</p>	<p>Participate in BAPPG studies, planning, and outreach activities in or beyond 2019. Provide information and outreach on City website in 2019 and begin to incorporate additional outreach tactics beyond 2019.</p>	<p>San José was an active member of BAPPG in 2019 and worked to approve outreach collateral for oral flea and tick alternatives. City staff also incorporated information onto the City's website and linked back to the BAPPG Baywise website. Staff also began discussions to incorporate flea and tick outreach into future messaging strategies.</p>
<p>Investigation Work with SFEI-RMP to continue emerging contaminant studies.</p>	<p>Plan for future emerging contaminant studies on pharmaceuticals, microplastics, non-targeted analytes, & other prioritized CECs in or after 2019.</p>	<p>2019:</p> <p>Worked with RMP to ensure accurate characterization of the SJ-SC RWF wastewater process, loads, fate, and transport in the pharmaceutical monitoring final report for seven Bay Area POTWs.</p> <p>Worked with RMP, SFEI, and national scientists to develop practical, achievable and scientifically defensible subsampling protocols for microplastics particle identification and enumeration in water samples.</p>

Attachment A – Acronyms

BACWA	Bay Area Clean Water Agencies
BAPPG	Bay Area Pollution Prevention Group
BASMAA	Bay Area Stormwater Management Agencies Association
BIC	Biologists in Classrooms
BMPs	best management practices
BNR	biological nutrient removal
BPAs	Basin Plan Amendments
CCC	Creeks Come to Class
CESQG	conditionally exempt small quantity generator
CMS	copper management strategy
CPSC	California Product Stewardship Council
DFU	drainage fixture unit
DOT	Department of Transportation
ESD	Environmental Services Department
EPA	Environmental Protection Agency
FOG	fats, oils, and grease
FSEs	food service establishments
GCDs	grease control devices
GGI	gravity grease interceptor
GSI	green stormwater infrastructure
GWDR	General Waste Discharge Requirements for Sanitary Sewer Systems
HGI	hydromechanical grease interceptor
HHW	household hazardous waste
IPM	Integrated Pest Management
IUs	industrial users
LCR	Lead and Copper Rule
LID	low impact development
LSB	Lower South Bay
medicine page	http://sjenvironment.org/medicine
NCU	Neighborhood Cleanup
NPDES	National Pollutant Discharge Elimination System
OWOW	Our Water, Our World
P2	pollution prevention
P2 Report	Pollutant Minimization Report
PCBs	polychlorinated biphenyls
PFAs	per-fluorinated compounds
POPs	persistent organic pollutants
Quakes	San José Earthquakes professional soccer team
Quicksilver	mercury

RAPID	Removing and Preventing Illegal Dumping
RMP	Regional Monitoring Program
RV	recreational vehicle
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCVWD	Santa Clara Valley Water District
SFBWS	San Francisco Bay Wildlife Society
SFEI	San Francisco Estuary Institute
Sharks	San José Sharks professional ice hockey team
SJ EIC	San José Environmental Innovation Center
SJMC	San José Municipal Code
SJ-SC RWF	San José-Santa Clara Regional Wastewater Facility
SOP	standard operating procedure
SSMP	sewer system management plan
SSO	sanitary sewer overflow
Stormwater Permit	NPDES permit
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
tributary agency	one of eight cities or unincorporated areas that SJ-SC RWF services
TTOs	total toxic organics
VTA	Valley Transportation Association
Water Board	San Francisco Bay Regional Water Quality Control Board

Attachment B – 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 31, 2019

To: Storm Water/Urban Runoff P2 Staff

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

DS
WJG

7/31/2019

Re: Fiscal Year 2018-2019 HHW Program Update

Participation

The HHW Program served 35,452 residents from July 1, 2018 through June 30, 2019 and safely managed 2,646,571 pounds of hazardous waste. There were a total of 179 collection events: 169 at two permanent facilities and 10 at temporary sites strategically located throughout the County. In addition, the program served 302 small business drop-offs including local governments, Goodwill Industries, Hope Services, and The Salvation Army.

Paint

A total of 1,185,323 pounds of paint and paint related material were collected. Latex paint accounted for 433,188 pounds and oil-based paint related material accounted for 752,135 pounds. There are about three dozen take-back locations at retail stores and several one-day take-back events managed by the paint manufacturers. Paint collected at these locations does not contribute to the above quantities.

Pesticides

The HHW Program collected 202,700 pounds of poisonous liquids, and 140,000 pounds of poisonous solids.

Household batteries

A total of 150,497 pounds of household batteries were collected and recycled. Of that volume, retail take-back stores accounted for 48,481 pounds. Thirty (30) stores serve as our network of battery take-back partners¹. In addition, our battery partners manage their collected rechargeable batteries directly through Call2Recycle, the North American Product Stewardship Organization

¹ During the period covered by this report, we believe that a retail contraction of 6% in home-generated battery collection partners, most notably by the closure of the Orchard Supply Hardware chain serving our community, contributed to a 24% overall reduction of collected home-generated batteries in FY18-19. Orchard Supply Hardware was a prominent battery collection retail partner since the onset of the program.

funded by the producers. Lastly, there are dozens of 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 83,215 pounds² of fluorescent lamps were collected. Of that volume, retail take-back stores accounted for 50,333 pounds. The remaining were collected at HHW events. Twenty-four (24) stores serve as fluorescent lamp take-back partners. Similar to batteries, there are more than a dozen other Santa Clara County locations that accept fluorescent lamps that are not part of our network of partners³.

Mercury Containing Products

Fifty (50) pounds (includes thermostats, thermometers and other mercury containing products).

Pharmaceuticals and Sharps

A total of 6,687 pounds of unwanted/expired medications were managed through the program. Additionally, MED-Project, LLC operates a Product Stewardship Plan for unwanted medicine from households in the County of Santa Clara and collected a total of 29,333 pounds of pharmaceuticals via kiosk drop-off sites during the first year of program implementation⁴.

A total of 7,416 pounds of used sharps were managed. Similar to pharmaceuticals, a product stewardship plan for sharps collection will be implemented in 2019. The plan will result in a decrease in the number of pounds collected through the HHW program but should result in an overall increase in safe disposal⁵.

Public Outreach

Staff participated in 24 community outreach events.

² Correction of prior data – During review for this reporting period, it was determined that the Fiscal Year 2017-2018 HHW Program Update sent to you on July 2018, reported a total of 201,547 pounds of mercury-containing fluorescent lamps. This was incorrect. Due to a database reporting error, this number erroneously incorporated 109,346 pounds of batteries which had already been captured elsewhere appropriately as batteries, which resulted in an overstatement. The correct weight of mercury containing fluorescent lamps collected during Fiscal Year 2017-2018 is 92,201. We recognize that data may have already been reported elsewhere in the intervening period and we regret the error.

³ During the period covered by this report, we believe that a retail contraction of 17% in Fluorescent bulb collection partners, most notably by the closure of the Orchard Supply Hardware chain serving our community, contributed to a 31% overall reduction of collected home-generated fluorescent bulbs in FY18-19. Orchard Supply Hardware was a prominent fluorescent bulb collection retail partner since the onset of the program.

⁴ MED-Project, LLC [MED-Project Annual Report 2019](#)

⁵ MED-Project, LLC [MED-Project LLC Revised Stewardship Plan - February 4, 2019](#)