San José-Santa Clara Regional Wastewater Facility

Annual Pollution Prevention Report 2020

San José-Santa Clara
Regional Wastewater Facility

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2020 Pollution Prevention Annual Report

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

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Acknowledgements

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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).

2020 was an unprecedented year in recent history. The global pandemic from the SARS-CoV-2 virus that causes COVID-19 impacted everyone, and wastewater treatment services were no exception. Following federal, state, county, and city health and safety guidance was and remains a top priority for the Regional Wastewater Facility. Some of the adaptive measures implemented throughout 2020 in response to the global health crisis included cancelling some planned event outreach, switching to digital outreach and inspections, as well as pivoting on planned outreach to address changing needs. Health and safety protocols remain in place for all City operations. Despite these changes to day-to-day operations and despite some COVID positive cases from individuals who were on site, the SJ-SC RWF continued to treat 100% of wastewater received and met 100% of effluent water quality requirements. The pandemic did result in suspension of some in-person inspections, and where possible virtual inspections were quickly resumed.

In 2020, 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 R2-2020-0001.

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, 2020 to December 31, 2020.

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 2020, an average of approximately 101 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).

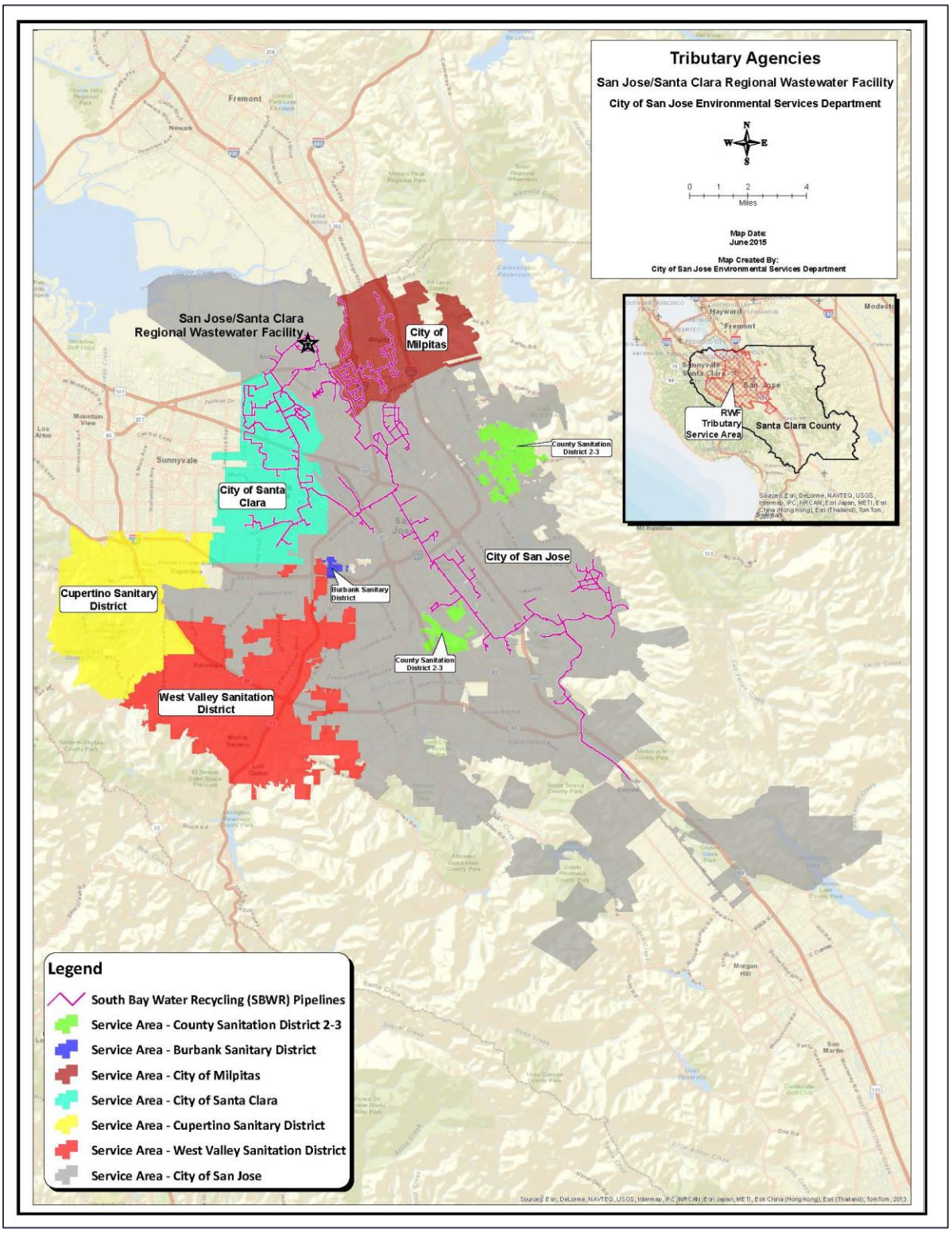

FIGURE 2. SJ-SC RWF SERVICE AREA AND TRIBUTARY AGENCIES

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
Mercury	Tier 2	TMDL
PCBs	Tier 2	TMDL
Copper	Tier 2	Permit Action Plan
Cyanide	Tier 2	Permit Action Plan
Pesticides	Tier 2, Tier 4	TMDL & Emerging Contaminants
FOG	Tier 3	Operational Impact – collection system
Pharmaceuticals	Tier 4	Emerging Contaminants
Microplastics	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
Mercury	Dental amalgam waste, thermometers, thermostats, compact fluorescent light bulbs
PCBs	Dielectric fluid in transformers built prior to 1978. Building caulking and some roofing materials from pre-1980s construction
Copper	Copper plumbing, pool and spa maintenance, vehicle service facilities
Cyanide	Industrial users, and always a very small concentration that is a byproduct of chlorine disinfection
Pesticides	Residential ant and spider control, and potentially professional pesticide operators. Residential flea and tick topical treatments.
FOG	Kitchen waste from restaurants and residents
Pharmaceuticals	Residential or hospice disposal in the toilet. Some pharmaceuticals, such as albuterol, oflaxacin, fluoxitine (Prozac), carbamazepine, and some antibiotics are excreted by human users at low concentrations that still pass through the treatment facility, and into the Bay
Microplastics	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[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 members 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 though 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 2020, 154 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.

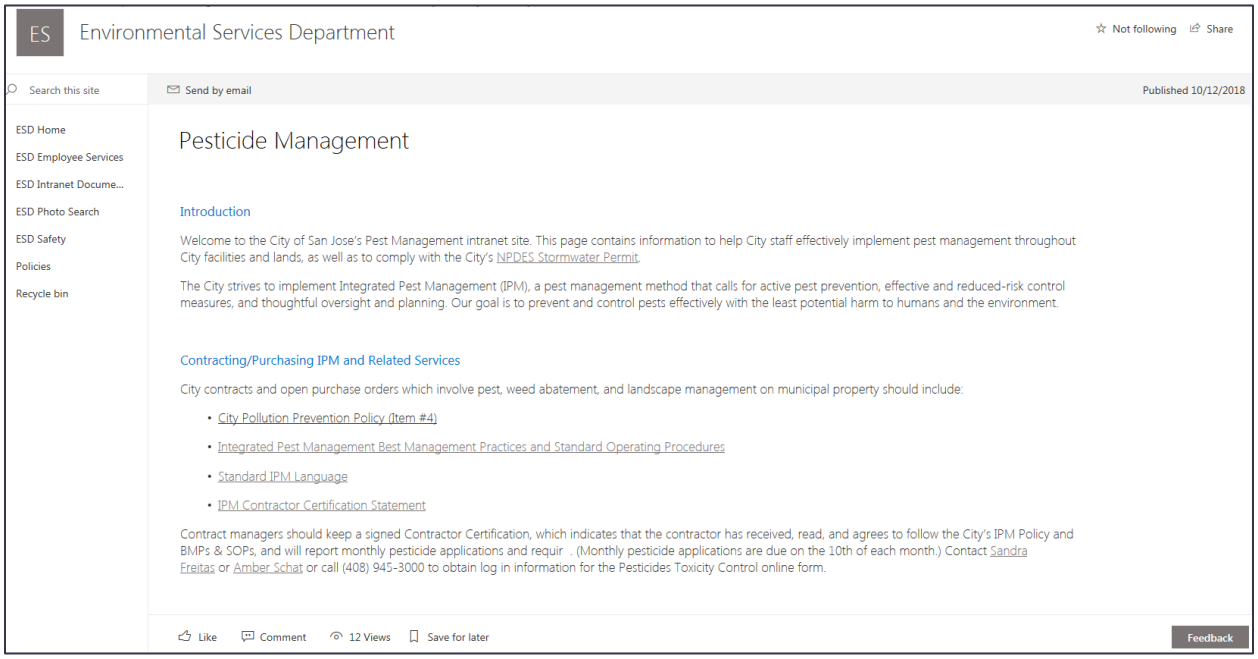

FIGURE 4. IPM INFORMATION ON THE CITY'S INTRANET SITE

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 by calling (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, Very Small Quantity Generators 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.

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

The Santa Clara County HHW Program served 27,900 residents in FY 19-20. Due to shelter-in-place orders as a result of the COVID-19 pandemic, the program suspended all collection activities on March 16, 2020; collection events were authorized to resume at the permanent facilities on June 10, 2020. As a result, the number of collection events during this fiscal year was reduced by 25% to a total of 134 collection events: 128 at two permanent facilities and 6 at temporary sites strategically located throughout the County. The program was able to serve 289 small business drop-offs including local governments, Goodwill Industries, and The Salvation Army. For more information on

hazardous waste drop-off sites in Santa Clara County, residents and Very Small Quantity Generators can visit www.HHW.org or call 408-299-7300. Appointments are required for drop-off events.

Beautification Days, Junk Pickup, and RAPID cleanup team

FIGURE 6. BEAUTIFICATION DAY CLEANUP TEAM AT WORK

Council District Beautification Days were first implemented in 2018, along with the residential Junk Pickup programs, to reduce illegal dumping throughout the City, beautify San José, and replace the previous Neighborhood Cleanup (NCU) program. 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 2019-2020 Beautification Days, also impacted by the COVID-19 pandemic, can be found in Table 3.

TABLE 3. FY 2019-2020 BEAUTIFICATION DAYS SUMMARY

	Events hosted	Tons collected	Tons recycled	Tons donated
July 2019	3	32.32	24.24	0
August 2019	3	75.58	44.68	(917 lbs)
September 2019	2	31.11	21.58	0
October 2019	3	33.51	22.17	0
November 2019	7	122.45	61.85	2.75
December 2019	3	23.69	17.77	0
January 2020	2	62.12	47.73	2.25
February 2020	2	30.48	23.35	(1,800 lbs)
March 2020	1	12.99	9.74	(1,877 lbs)
April 2020	COVID-19 LOCKDOWN			
May 2020				
June 2020	2	34.83	26.12	0
Total:	**28**	**459.08**	**299.23**	**7.3**

FIGURE 7. JUNK PICKUP ADVERTISING

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 19-20 a total of 11,200 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 the City'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 2019-2020 fiscal year, RAPID cleaned approximately 17,300 illegal dump sites, and collected approximately 2,100 tons of debris including over 400 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 8. IMPROPERLY DISPOSED HHW LOCATED AND CLEANED BY RAPID TEAM

TABLE 4. SELECT ITEMS COLLECTED BY RAPID TEAM IN FY 19-20

Item	Quantity collected
Tires	1,289
Refrigerators	145
Mattresses	3,799
TVs recycled	461
Paint	264 gal
Human biological waste	412 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.

Due to COVID-19, both the Creeks Come to Class (CCC) and Biologist in Classroom (BIC) programs were put on hold during FY19-20. All scheduled presentations were canceled due to school closures. City staff presented to 120 students of two biology classes at Evergreen Valley College and one AP Environmental Science class at Pioneer High School before the school closures. These presentations focused on Integrated Pest Management topics, pollution prevention, and trained students to assist with monitoring some of the City's Barn Owl nest boxes.

Sports campaigns

San José utilized its sports outreach with Major League Soccer team the San José Earthquakes (Quakes) and National Hockey League team the San José Sharks (Sharks) in the months of April and September. The P2 ads promoted both safe medicine disposal and switching to environmentally friendly chewable flea and tick treatments. The messages used for this campaign were "**Protect the Bay. Get rid of expired meds the right way"** and **"Keep our waterways safe and clean! Switch to flea and tick chewables."** Ads included web and mobile ads via Facebook/Instagram, Twitter, and Google; Uforia Spanish Streaming radio ads; Univision web/mobile ads; and AudioGo streaming radio ads (Pandora, TuneIn, iHeartRadio). Ads also ran on game-day radio during Quakes games in September in both English and Spanish. In-stadium outreach included LED signage seen on TV broadcasts; a scoreboard ad at the Earthquakes stadium facing Coleman Avenue, a street with heavy traffic, that ran six days a week; and ad banners on the Quakes website. For these campaigns, the sports team pivoted to digital ads instead of the usual external advertising and in-stadium outreach due to the pandemic, which eliminated in-fan attendance and limited movement of residents during stay-at-home orders. The Quakes campaign in particular featured an array of Spanish-language ads to reach Spanish-speaking fans of the Quakes, roughly one-third of whose fanbase is Latino.

FIGURE 8. QUAKES POLLUTION PREVENTION MEDICINE DISPOSAL AD

Quakes Campaign

HHW and safe medicine disposal was promoted through in-stadium and out-of-stadium public outreach via a sports campaign effort: **Protect the Bay. Get rid of expired meds the right way**. Messaging appeared at four home San José Earthquakes games in September 2020. This messaging included Spanish-language radio ads during the gameday broadcast and streaming radio. Advertising in both English and Spanish reached a wider audience of San José residents. A breakdown of tactics and impressions is found below in Table 5.

FIGURE 9. SPANISH LANGUAGE QUAKES MESSAGING

TABLE 5. 2020 QUAKES TACTICS AND IMPRESSIONS

Quakes Tactics	Impressions Sept 2020
Univision (Online & Mobile)	252,339
Facebook	176,819
Google	870,889
AudioGo (Online & Mobile streaming ad)	55,641
Twitter	73,835
Uforia (Spanish language audio streaming)	343,014
Total	**1,772,537**

Sharks Campaign

Because of the COVID-19 pandemic, the Sharks flea pollution prevention campaign was entirely digital. With residents sheltering in place, ESD staff decided to eliminate outdoor advertising such as billboards. As the National Hockey League season paused, the in-stadium advertising was not available for this campaign, but ESD staff are working with the Sharks on a contract amendment to make up for lost assets by implementing additional ads in the 2021 season. Through digital tactics, the campaign still performed very well and brought in substantial website visits. Google performed especially well, with more than 2.6 million impressions and 24,578 ad clicks targeted at Santa Clara County residents. Sharks tactics and impressions are summarized in Table 6 below.

FIGURE 10. SHARKS P2 FLEA AD

TABLE 6. 2020 SHARKS TACTICS AND IMPRESSIONS

Sharks Tactics	Impressions April 2020	Ad Clicks April 2020
Facebook	801,828	2,964
Twitter	614,725	5,932
Google Display (Ads on various online and mobile platforms)	2,660,629	24,578
Total	**4,077,182**	**33,474**

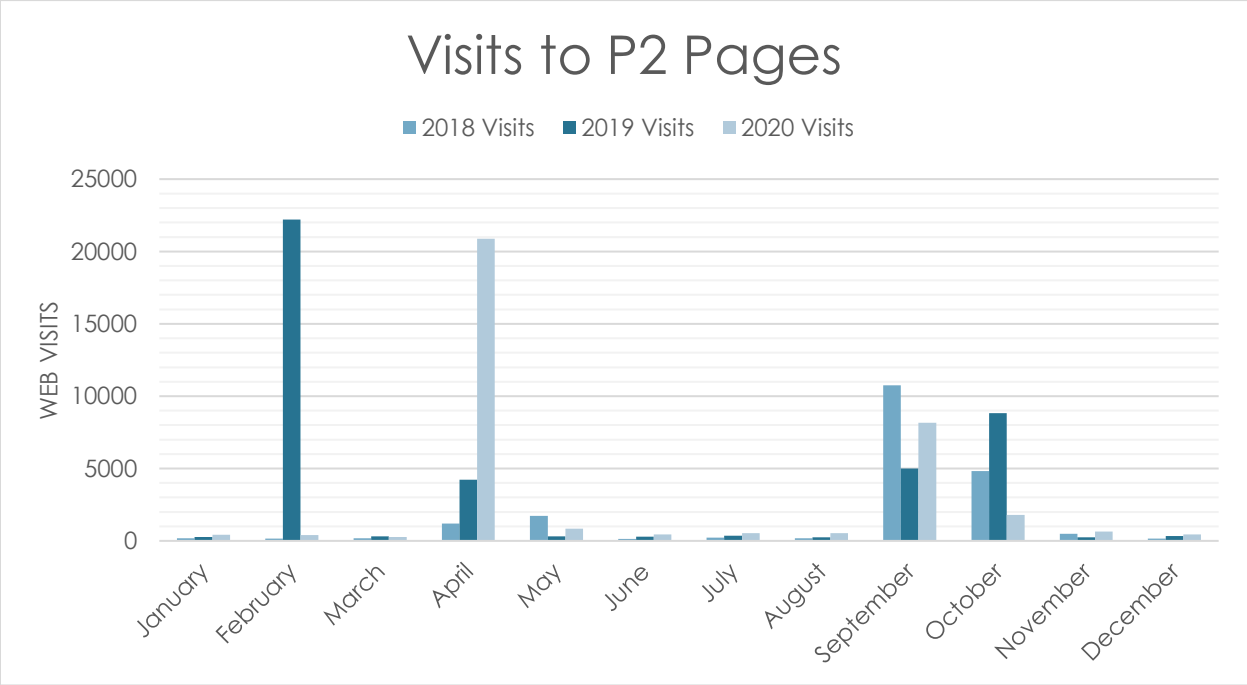

FIGURE 11. SJENVIRONMENT.ORG/MEDICINE VISITS 2018-2020

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

Total combined impressions from all sports-campaign P2 efforts were 5,849,719 targeting residents in Santa Clara County.

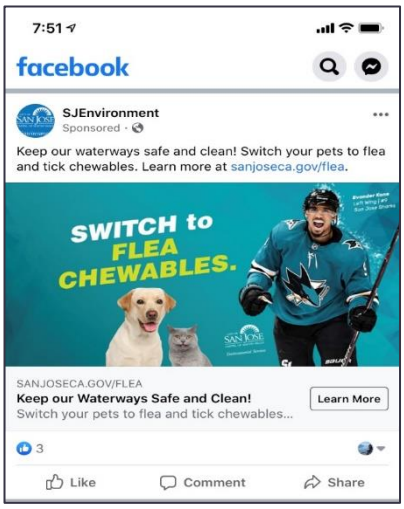

FIGURE 12. SHARKS "SWITCH TO FLEA CHEWABLES" FACEBOOK AD

Regional Partnerships

RMP

The RMP[2] 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 a number of workgroups, including those focused on Emerging Contaminants and Microplastics. The City also provides in-kind staff support for specific RMP pollutant studies.

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 19-20, 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 2020 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

[2] http://www.sfei.org/rmp
[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/2021/01/2020-BAPPG-Annual-Report.pdf

   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
   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
7. PCBs and Hazardous Demolition Wastes
   a. Identify PCB and other hazardous materials prior to demolition
   b. Inspect buildings remodeled prior to 1980 for PCB-containing exterior caulk and sealants
   c. During removal of PCBs and other hazardous materials, protecting building residents and demolition staff and disposing of wastes according to state and federal disposal laws
   d. Utilize the BAPPG brochure and companion web site for more information: www.baywise.org/demolition

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.

[7] https://www.scvurppp.org

Summary

Table 7 summarizes pollution prevention outreach tactics and effectiveness for 2020.

TABLE 7. GENERAL POLLUTION PREVENTION OUTREACH

Program	Description / Status	Evaluation
Beautification Events	Communicate and distribute P2 information on HHW disposal while collecting non-hazardous waste. 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.	20 Beautification Day cleanups in FY 2019-20. - 354.41 tons of material collected. - 2.9 tons were donated to local non-profits.
Facilitate implementation of school environmental programs	CCC curriculum is taught to elementary school students to teach awareness about water and pollution 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. BIC trains high school students to teach CCC curriculum and teach elementary learners.	CCC and BIC presentations were cancelled in 2020 due to school closures as a result of COVID-19 and County Shelter in Place orders.
Sports advertisements	Following successful campaigns in previous years, outreach campaigns promoting the safe disposal of medicine and use of flea medication continued in 2020 with the Quakes (September 2020) and Sharks (April 2020) teams. In addition, there was a campaign promoting the safe disposal of HHW in December 2020 (Quakes) and April 2020 (Sharks). Sports campaigns had to adapt after March 2020 in response to the COVID-19 pandemic, with no fans in attendance at games, focusing on digital outreach to the community and social media assets. Ads with the Quakes promoted the message "Protect the Bay, get rid of expired meds the right way" and drove traffic to the medicine page[8],	**Combined impressions for both sports campaigns in 2020 were 5,849,719**. *San José Earthquakes* - 8,161visitors to the medicine page in September 2020 during the Quakes campaign. This is a 63% increase in visits compared with September 2019. - Game-day radio ads, social media ads on Facebook and Twitter, and Spanish-language digital ads on Univision's mobile platforms ran in September. - The Quakes shared our campaign message via a banner ad on their website

[8] http://sjenvironment.org/medicine
[2] http://sjenvironment.org/flea

Program	Description / Status	Evaluation
	which provides a list of locations in San José and the surrounding region where residents can safely dispose of their medicine. Ads with the Sharks promoted the message "Keep our waterways safe and clean! Switch to chewable flea and tick medication" and drove traffic to the Pollution Prevention page[9],which has a section on the harms of topical flea and tick medication. City staff also generated Flea and Tick FAQ[10] to aid with questions and discussion generated through social media posts related to this campaign.	that garnered approximately 3,000 impressions. *San José Sharks* - 20,881 visitors to the P2 pages in April 2020. This represents a 390% increase in visits compared with April 2019. - Digital ads on Facebook, Twitter and Google ran in April 2020, garnering 4,077,182 impressions and 33,474 link clicks. - Campaign was fully digital due to COVID-19 pandemic. No outdoor or in-stadium advertising.

Other outreach	ESD highlighted the environmental impact of safe medicine disposal during Pollution Prevention Week in September 2020 and National Drug Take Back Day in October 2020.
	A 30-second ad promoting safe medicine disposal using the "Don't rush to flush, protect the Bay" campaign slogan was originally scheduled to run at the Senter Road and Santa Teresa DMV locations in April 2020. However, due to the pandemic, all DMV locations were closed through April and gradually started reopening in May for appointments. The safe medicine disposal ad ended up running at the Senter Road location in June 2020 and at the Santa Teresa location in July 2020. Advertising at the DMV reaches a captive and diverse audience.
	During Pollution Prevention Week (Sept. 21-27, 2020) ESD published 2 social media posts promoting the safe disposal of used and expired medicines on Facebook and Twitter.
		- DMV ad running June 2020 through July 2020. The ad ran two times every hour at two DMV locations, or approximately 4,800 times total.
		- Social media posts during Pollution Prevention Week resulted in 114 views of a safe medicine disposal video and 776 impressions on Twitter, with 412 people reached on Facebook.
		- Digital ads in different languages on Facebook during October 2020 resulted in numerous link clicks and impressions:
		  ○ English-language ad: 1,427 link clicks, 145,334 impressions
		  ○ Spanish-language ad: 917 link clicks, 43,125 impressions

[9] http://sjenvironment.org/flea
[10] https://www.sanjoseca.gov/your-government/department-directory/environmental-services/test-esd-faqs

Program	Description / Status	Evaluation
	ESD also published a social media post promoting National Prescription Drug Take Back Day on Oct. 24, 2020. Digital ads in Spanish, English and Vietnamese ran on Facebook in October 2020 promoting National Prescription Drug Take Back Day and the general message of safe disposal of unwanted medicine. In addition, ESD tabled at the one of the city's most popular Vietnamese festivals at Eastridge Mall - the Tet Festival in January 2020 – to promote the safe disposal of medicine and HHW. This event is considered one of the biggest Vietnamese events in the Bay Area with an estimate of 25,000–30,000 attendees.	○ Vietnamese-language ad: 1,147 link clicks, 69,404 impressions - An estimated 300-400 people stopped by ESD tables at the 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 exposed to the message. 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. Whenever possible, the City tracks metrics such as impressions (the number of 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.

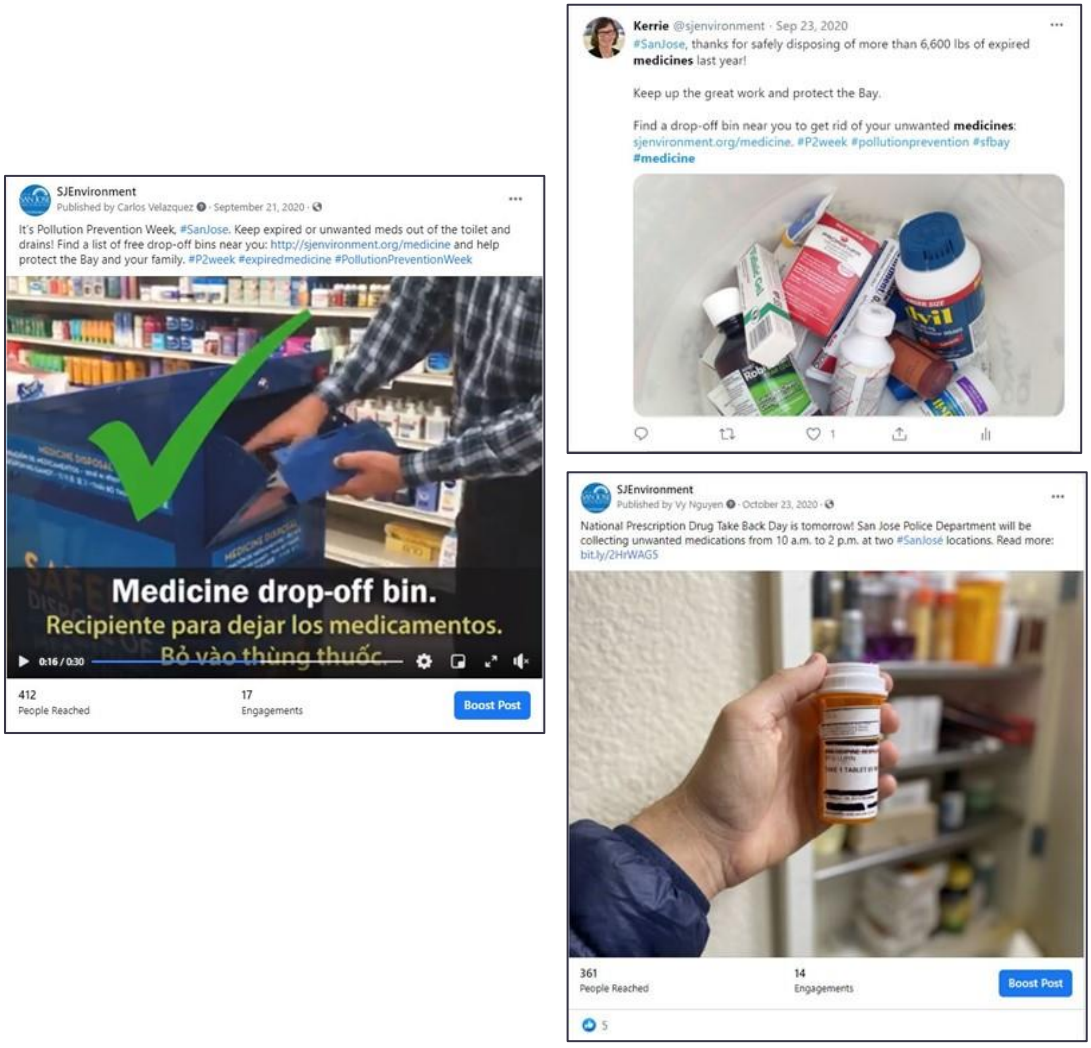

FIGURE 13. SOCIAL MEDIA MEDICINE BIN OUTREACH SHOWING METRICS SUCH AS ENGAGEMENTS AND NUMBER OF PEOPLE

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)
Average Effluent Limits	0.800	0.025	0.027	NA
Triggers for Advanced Secondary Plants	NA	0.011	NA	0.021
2020 Maximum Results	0.120	0.00196	0.00196	0.00196

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 829 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 18 new permits to dentists in the Tributary area in 2020.

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 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

	2016	2017	2018	2019	2020
Total Issued	820	844	856	898	829
New permits	37	48	32	17	18

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 2020, oversight of dentists was focused on outreach and dental annual reports were not required for the 2019 calendar year. Due to state and local COVID-19 orders, in-person dental inspections were temporarily halted through most of 2020. Dental Amalgam Program Annual Report Forms, BMPs, and amalgam separator certifications are available for download on the City of San José website[11].

Inspections in 2020 verified that amalgam separators were installed at 99% of practices. The remaining 1% represents newly identified dental facilities. The program identified 3 violations by dental practices in 2020. These included amalgam separator maintenance and record keeping 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.

[11] http://www.sanjoseca.gov/dental

The San José facility receives HHW from residential drop-off appointments most Thursdays, 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 Very Small Quantity Generators 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 2020, a total of 829 permits were active. Issued new permits to 18 practices. 99% of practices certified for amalgam separators and are following Dental Amalgam BMPs. Completed 6 dental office inspections in 2020. Due to state and local COVID-19 orders, in-person dental inspections were temporarily halted through most of 2020.
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. • 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 6 temporary and 134 permanent residential hazardous waste drop-off events. County program also served 289 small business drop-offs including local governments, Goodwill Industries, Hope Services, and Salvation Army. In FY 19-20, HHW program recycled: 450 pounds of mercury containing products (includes thermostats, thermometers and other products), 62,433 pounds of fluorescent lights, and 111,979 pounds of household batteries.
Dental Practice BMPs maintained on San José web site: - Dental Amalgam Program[12] - BAPPG approved amalgam separators[13]		

[12] http://www.sanjoseca.gov/dental
[13] 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 14).

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 15). Most of the reduction is believed to be a result of changes in the dental industry.

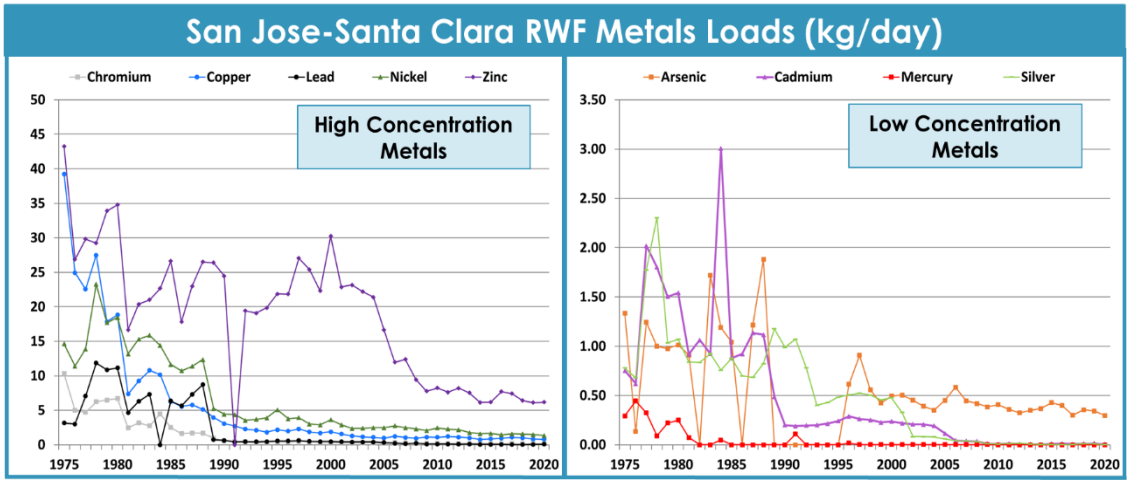

FIGURE 14. METALS LOADS (KG/DAY) FOR SJ-SC RWF

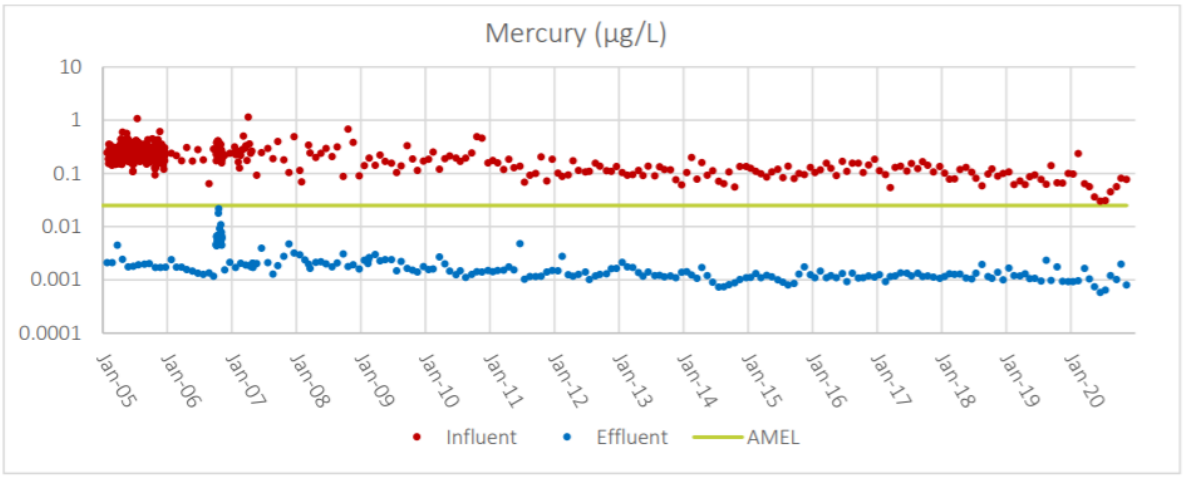

FIGURE 15. MERCURY REMOVAL PERFORMANCE 2005-2020

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 applications[14]

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 41 sampling events have quantified any PCBs congeners (Figure 16).

[14] https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs

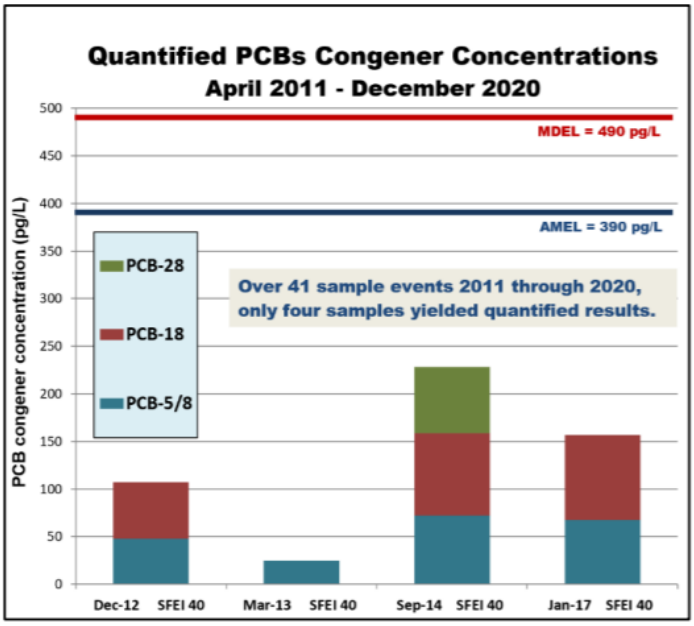

FIGURE 16 PROPOSED METHOD 1668C (FOR INFORMATION ONLY) QUANTIFIED RESULTS FROM 2011-2020

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 µg/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 Santa Clara Valley Water District (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 decreased in 2020 to 2.46 lbs/day due to better compliance with local and federal discharge limits. (Figure 17).

In addition, the City participates in BAPPG, which in collaboration with BACWA and BASMAA, maintains a website[15] with copper resources for plumbing and pools.

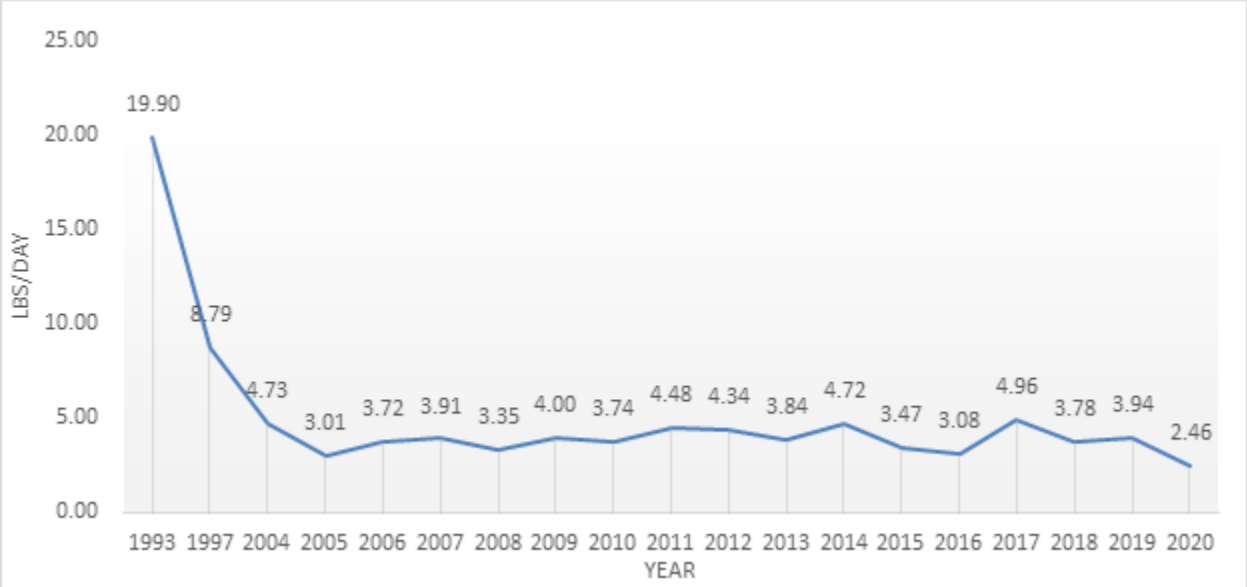

FIGURE 17. AVERAGE COPPER INDUSTRIAL LOADING PER WORKDAY

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

TABLE 11. COPPER PREVENTION PLAN.

Message / Program	Implementation & Timeline	Evaluation
Copper Pipe	Maintain copper pipe factsheet.	Baywise/BAPPG maintained copper pipe fact sheet and has

[15] https://baywise.org/

Message / Program	Implementation & Timeline	Evaluation
Educate plumbers, designers, and contractors for pools, spas, HVAC systems, and general plumbing on BMPs to minimize copper pipe corrosion.	Baywise/BAPPG to communicate copper pipe corrosion message to plumbing unions, contractors, building inspectors, and colleges.	plans to update plumbing messages and copper source analysis in the future.
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	Ten brochures were distributed in 2020 due to a reduced number and virtual method for inspections to adhere with the Stay-at-Home Order resulting from the COVID-19 pandemic.
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 2.54 µg/l.
Copper BMPs maintained on San José web site: Cooling Towers[16] Roof Runoff Factsheet[17] Guidelines for Industrial Water Reuse[18] Draining Pools and Spas brochure[19] Pools[20] Car Washing brochure[21] Baywise/BAPPG resources[22]		

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).

[16] https://www.sanjoseca.gov/Home/ShowDocument?id=37053
[17] https://www.sanjoseca.gov/home/showdocument?id=37097
[18] https://www.sanjoseca.gov/Home/ShowDocument?id=37059
[19] https://www.sanjoseca.gov/home/showdocument?id=1228
[20] https://www.sanjoseca.gov/your-government/environment/our-creeks-rivers-bay/preventing-water-pollution/pools
[21] https://www.sanjoseca.gov/home/showdocument?id=37099
[22] https://baywise.org/business/plumbing-resources/

TABLE 12. COPPER REMOVAL PERFORMANCE 2018-2020

	Influent			Effluent			
Year	Low	High	Average	Low	High	Average	Removal
2018	94	138	118	2.04	3.12	3.03	98%
2019	58	94	81	2.11	2.82	2.36	97%
2020	**82**	**137**	**101**	**1.75**	**3.10**	**2.54**	**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 2020. 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.	No industrial discharge violations identified.
	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 ug/l AMEL, 14 ug/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 ug/L as a byproduct from the SJ-SC RWF's disinfection process (Table 15).

TABLE 15. CYANIDE INFLUENT AND EFFLUENT LEVELS 2018-2020.

	Influent			Effluent			
Year	Low	High	Average	Low	High	Average	Removal
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
2020	**0.9(ND)**	**2.0(DNQ)**	**1.3**	**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 resistant to biotic/abiotic breakdown can be transported via water, affecting people and wildlife far from where they are released.[23]

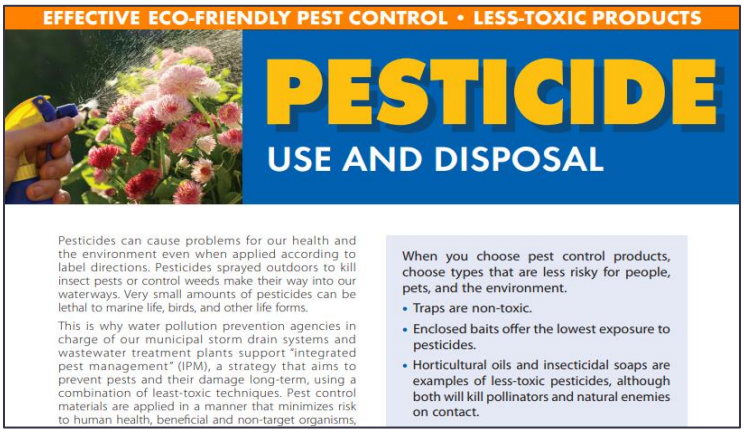

FIGURE 18. SCVURPPP OWOW OUTREACH COLLATERAL ON PESTICIDE USE

[23] https://www.epa.gov/international-cooperation/persistent-organic-pollutants-global-issue-global-response

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[24] 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 FY19-20, the Watershed Watch outreach effort completed 20 years of implementation and included TV and radio ads, collateral and displays, as well as online digital media. The Watershed Watch Campaign included 870 total spots on IPM topics, including 28 spots on hiring an eco-friendly pest control professional, and 228 spots on the Santa Clara Valley Green Gardener program.

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 Problems" residential fact sheet.	Distribute to business audiences, "Hiring a Company that Can Prevent Pest Problems" residential fact sheet.	Distribute to business audiences, "Hiring a Company that Can Prevent Pest Problems" residential fact sheet.
Residential – Home Use & Disposal		

[24] https://www.cleancreeks.org/158/Annual-Reports

Message / Program	Implementation & Timeline	Evaluation
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 27,900 residents in FY 19-20. 169,683 pounds of poisonous liquids and 91,600 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. The City provides annual training on the City's IPM policy and IPM techniques during the Annual Worker Safety training and additional tailgate training.	154 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 85% coverage for applicable employees. An additional 32 staff were provided training documents, a How-To Video, as well as the City's IPM policy for review in lieu of in-person trainings, which were canceled due to the COVID-19 pandemic and County of Santa Clara public health orders 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 2020, 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 33 SSOs reported during 2020, a reduction from 38 SSOs reported in 2019 (Figure 19).

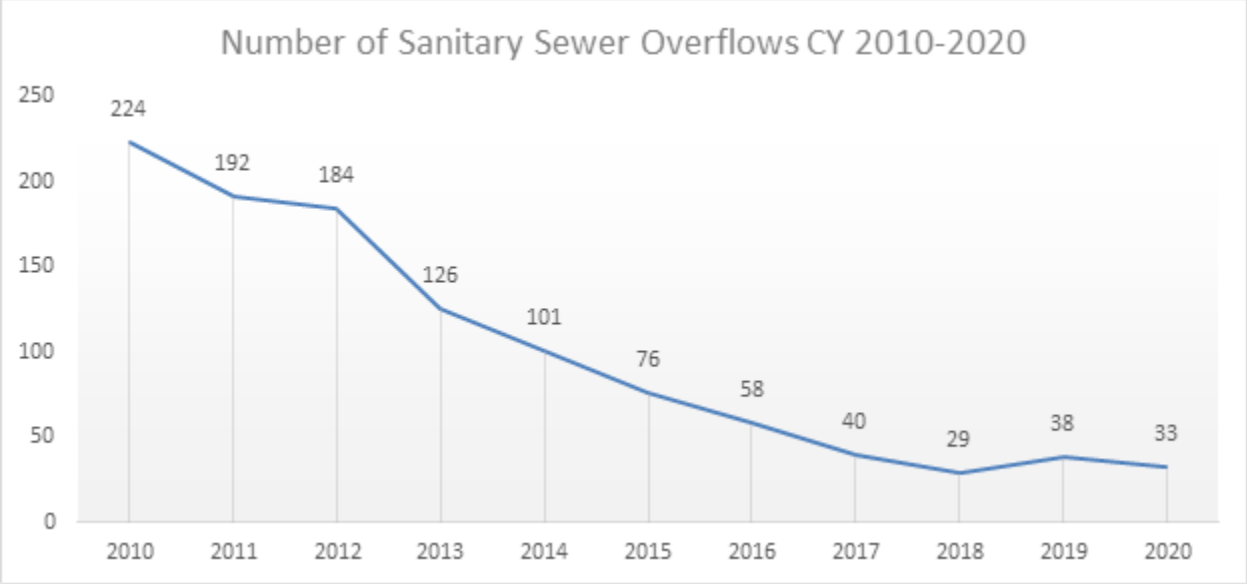

FIGURE 19. NUMBER OF SSOS IN SAN JOSÉ YEARS 2010-2020

Of the 33 SSOs, 30 were in Residential areas and three were in Commercial areas (Figure 20). City sewer crews identified 12 (37%) with grease as the contributing cause. Ten of the 30 Residential SSOs were caused by FOG, and two of the three Commercial SSOs were FOG-related (Figure 21). 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 22), to educate residents about the impacts of grease in the sewer and to inform them of alternative disposal methods. At least 1,774 doorhangers were distributed in 2020.

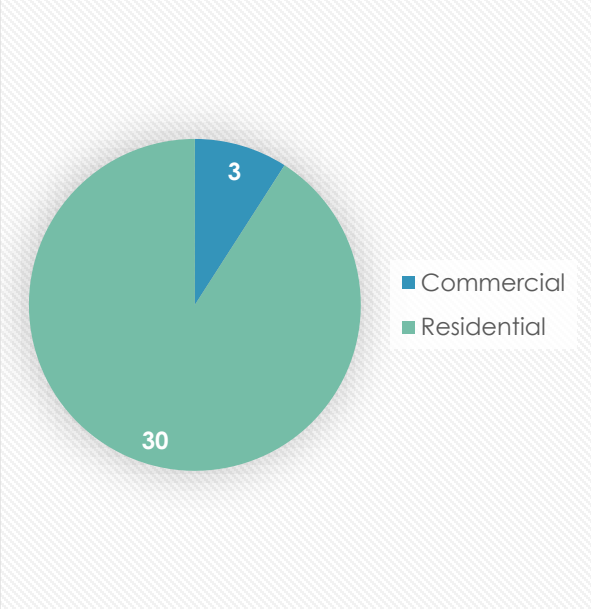

FIGURE 20. SSOS IN THE SAN JOSÉ COLLECTION SYSTEM IN 2020

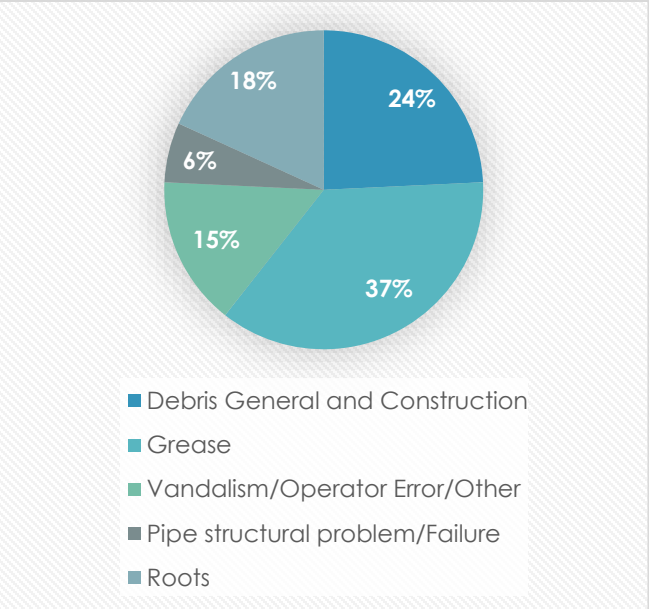

FIGURE 21. NUMBER AND CAUSE OF SSOS IN THE SAN JOSÉ COLLECTION SYSTEM IN 2020

FIGURE 22. #FOGWASTE EDUCATIONAL DOOR HANGERS

San José's DOT 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 1.6 SSOs per 100 miles of sanitary sewer lines. In 2020, 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 these new guidance documents for GCD sizing in June 2017.

FIGURE 23. #FOGWASTE MESSAGING ON CITY MAINTENANCE TRUCKS

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 15 grease control plan check reviews in 2020. In addition, in the City of Santa Clara, from July 1, 2019 through June 30, 2020, 96 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.

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 19-20, 974 FSE inspections were conducted at 446 FSEs 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

FIGURE 24. ENVIRONMENTAL INSPECTOR TAKING A CORE SAMPLE FROM A GREASE TRAP.

sample to assess the FOG and solids loading in the device (Figure 24). In FY 19-20, 563 GCDs were inspected (down from 1,283 in FY 18-19).

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 19-20, more than 851 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 19-20, 280 of the 446 FSEs inspected had one or more violations (63%, up from 50% in FY 18-19). A total of 353 discrete violations were documented (down from 520 in FY-18-19). Inspectors issued 188 Official Warning Notices (down from 305 in FY 18-19), one Compliance Meetings (down from five in FY 18-19), and 36 Administrative Citations (down from 68 in FY 18-19).

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 19-20, the City performed eight grease investigations involving 16 facilities, with 36 inspections conducted as part of these grease investigations. Nineteen violations were documented, and four Official Warning Notices were issued. Education is also an important component of grease investigations, with 44 FOG-related educational materials distributed as part of the grease investigations (Figure 26). In addition, the City

FIGURE 25. INSPECTING A COMMERCIAL GREASE INTERCEPTOR

of Santa Clara performed, from July 1, 2019 through June 30, 2020, 419 FOG inspections. They also performed 10 investigations because of referrals of excessive grease in the sewer from wastewater field maintenance crews.

FIGURE 26. ENGLISH, SPANISH, AND VIETNAMESE FOG COLLATERAL

On March 16, 2020 the Health Officer of the County of Santa Clara issued a Shelter in Place order directing all governmental agencies to cease non-essential operations at physical locations in the County. FOG and GCD inspections were suspended from mid-March and continued through the end of FY 19-20 due to the Shelter in Place. For FY 20-21, as COVID related restrictions to work continued, FOG efforts switched to FOG Contact Tasks, where inspectors contacted FSEs with GCDs over the phone to instruct them to continue to maintain equipment and to encourage them to enroll and use the City's new online digital compliance portal to upload maintenance records.

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 27. SAN JOSÉ'S DIGITAL COMPLIANCE PILOT

In September 2019 San José launched this free online reporting system for GCD maintenance records. Starting in 2020 FOG Inspectors conducted outreach tasks (FOG Contact Tasks) to enroll FSEs in the program. By the end of 2020, 919 FOG Contact Tasks had been completed, and 689 of the approximately 2,400 targeted FSEs have enrolled in the program. Several State-licensed Inedible Kitchen Grease Haulers are uploading records on behalf of their client FSEs, and records compliance can now be confirmed through the new program. San José's FOG program aims to enroll 1,200 FSE's by May 2021.

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 974 FOG Inspections and 563 GCD Inspections in FY 19-20
Distribute grease management information to inspected restaurants and FOG generators.	Educate food service owners/operators on FOG BMPs during inspections.	851 educational pieces distributed during FSE inspections, and 44 educational pieces distributed during Grease Investigation inspections in FY 19-20

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 FY-19-20 - Investigated 8 grease complaints, involving 16 facilities - 36 inspections conducted - 19 violations documented. 4 OWNs were issued - 42 educational materials distributed during investigations City of Santa Clara, from July 1, 2019 through June 30, 2020 - 419 FOG inspections conducted. - 10 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 2020 - Building Division now does all GCD sizing review as part of their overall Plan Check process. 15 grease control plan check reviews performed in 2020. City of Santa Clara, from July 1, 2019 through June 30, 2020 - 96 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.	Due to the spread of COVID- 19 and the accompanying shift in consumers relying heavily on wipes, BAPPG decided to not run a FOG campaign this year and instead focused on reducing trash and wipes.
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.	33 overflows in 2020 with 30 in residential areas, three in Commercial areas. 12 had FOG as a contributing factor, 10 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 1,774 doorhangers were distributed in 2020. Promoted notifying DOT when SSOs are spotted on Social Media.
FOG Art	Continue utilizing FOG art education campaign collateral materials.	Vactor 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 1,774 doorhangers were distributed in 2020.

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 2020

Recent studies with the RMP focused on microplastics, pharmaceuticals, per- and poly-fluorinated compounds (PFAS), quaternary ammonium compounds (QACs), and bisphenols. In 2020, the SJ-SC RWF, through ongoing collaborations with the RMP, performed investigations of emerging contaminants, including influent and effluent for PFAS, QACs, and Bisphenols as well as biosolids for Bisphenols and PFAS.

RMP Emerging Contaminants workgroup summarizes the 2020 strategy by discussing contaminants that have had significant changes to their tiered framework approach since 2018. 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 2020 Update*[25]. Currently, four emerging contaminants or classes of moderate concern for the Bay. These include PFOS, PFOA, Fipronil, and alkylphenols.

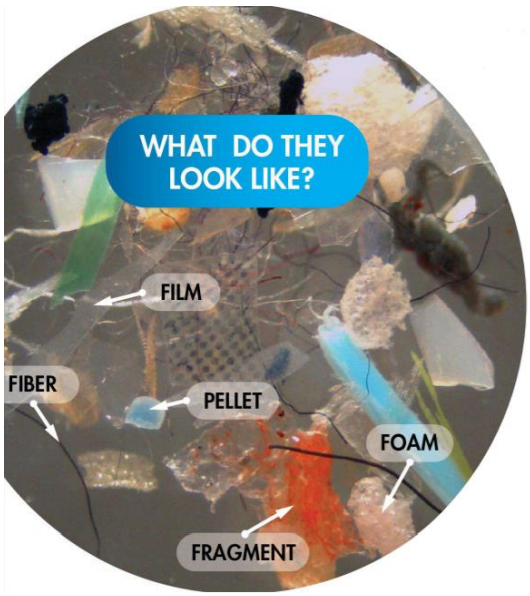

FIGURE 28. FROM RMP DOCUMENT *MICROPLASTIC MONITORING AND SCIENCE STRATEGY FOR SAN FRANCISCO BAY*

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 April 2020 workgroup meeting.

In October and November 2020, City staff attended the *Human and Ecological Health*

[25] https://www.sfei.org/sites/default/files/biblio_files/CEC%20Strategy%20-%202020%20Update%20-%20Final_92320.pdf

Effects of Microplastics in Water: A Webinar Series to Characterize Current Knowledge hosted by Southern California Coastal Water Research Project Authority (SCCWRP), SFEI, and University of Toronto. The webinar series hosted a variety of experts who discussed a wide variety of issues that can assist with the determination of microplastic toxicity. This information can also be used to develop legislative mandates such as Senate Bill (SB) 1422 and SB 1263.

Safe Medicine Disposal

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

- Countywide HHW Program: For FY 19-20, 5,248 pounds of medications were collected through this program. Participation in the countywide HHW Program is described in greater detail in the previous Public Outreach section.
- The police departments of San José, Santa Clara, Los Gatos, and Milpitas regularly participate in DEA National Prescription Drug Take-Back Day events. San Jose police department supervised pharmaceutical take-backs at approximately two locations in Santa Clara County during events held on October 24, 2020[26]

In June 2015, the City began participating with the SCVWD, on a three-year grant, in partnership with the California Product Stewardship Council (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. In FY 19-20 74,471 pounds of pharmaceuticals were collected via kiosk drop-off sites during the

FIGURE 29. SAFE MEDICINE DISPOSAL ADVERTISING DEVELOPED BY THE CITY OF SAN JOSÉ

[26] https://www.sjpd.org/Home/Components/News/News/127/262#:~:text=San%20Jose%2C%20CA%20%2D%20On%20Saturday,unused%2C%20and%20unwanted%20prescription%20and

second year of program implementation[27]. The amount collected during this period is more than two and a half times the 29,333 pounds collected by MED-Project during their initial year of rollout and implementation.

- Information on safe medicine disposal can be found at the Santa Clara County Medical Waste Management Program webpage[28]
- Locations of current drop-off boxes and mail-back package distribution sites are on the MED-Project website[29]

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

The RMP has monitored PFAS 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. PFAS 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 began in 2020, with a focus on drinking water standards. However, biosolids are also being considered and could be included in future reporting efforts. In November 2020, SJ-SC RWF provided the first of a series of influent, effluent, and biosolids samples for analysis in collaboration with the RMP.

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 34), 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. In 2020 the City created its own collateral with similar messaging (Figure 30). The City had an all-digital campaign due to COVID restrictions. This

FIGURE 30. FLEA AND TICK MESSAGING

[27] MED-Project, LLC Med-Project Annual Report 2020
[28] https://www.sccgov.org/sites/swp/programs/mw/Pages/mwm.aspx
[29] https://med-project.org/locations/santa-clara/

included social media (Facebook and Twitter) and a Google display. Website visits were up 390% during the campaign.

BAPPG also performed outreach focused on vets and veterinary medical associations. They discovered that big box stores no longer provide active ingredient information until after consumers make their purchase. They also developed draft outreach materials that include a letter to vets and an outreach flyer for clients. A regional online advertising campaign was paused as COVID shifted concerns.

In 2019 information was included onto the City's *Preventing Water Pollution*[30] page and additional information can be found on the at the BAPPG-related website baywise.org[31]. Additionally, the City plans to develop an internal policy regarding the use of fipronil- and imidacloprid-containing flea and tick topical medicines in 2021.

Wipes

While wipes have been an issue at wastewater facilities for some time now, the onset of the COVID-19 pandemic led to an increase in the quantity of wipes and wipes-related issues at many wastewater facilities across the nation. This was especially of concern early on in the pandemic when there was a national shortage of toilet paper and there were concerns of people turning to wipes as an alternative. These concerns and visible increases in volume led to strategic decisions being made at both the RMP and BAPPG.

FIGURE 31. SJ ENVIRONMENT WIPES SOCIAL MEDIA POST FROM EARLY IN THE COVID-19 PANDEMIC

In March of 2020, as the first lockdowns in the Bay area were initiated, BAPPG made the tactical decision to re-allocate some funds that would generally be used for FOG and pesticides outreach to run a "Wipes Clog Pipes" ad and media campaign. There was a second traditional P2 campaign in the fall with the broader topic of "Toilets aren't trash cans." More information on the campaigns can be found on the Baywise website[32]. San José also did its own outreach on social media urging residents not to flush their wipes.

Similar to BAPPG, as the concern over flushed wipes grew, the RMP came to the conclusion that this is a unique opportunity for a study on QACs in wastewater and

[30] https://www.sanjoseca.gov/your-government/environment/our-creeks-rivers-bay/preventing-water-pollution#Pet%20Flea%20Treatment
[31] https://baywise.org/residential/pets/
[32] https://baywise.org/residential/your-toilet/

biosolids. QACs are present in a variety of disinfectant products that were used and over-used during the pandemic. Impacts of QACs may include disruption of wastewater treatment unit operations, proliferation of antibiotic resistance, formation of nitrosamine disinfection byproducts, and impacts on biota in surface waters.[33] The SJ-SC RWF provided samples of influent and effluent (biosolids are also being collected at other facilities, but due to the procedures at SJ-SC RWF our biosolids are not suitable for this study) for analysis, and will be providing more in 2021. These samples will be compared to "baseline" data from a 2017 study of wastewater, stormwater, and sediment.

Emerging Contaminant Investigations planned

Based on past studies conducted from 2008 – 2020 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 2021. 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
Unwanted Medications Do not flush unwanted medicine down the toilet or sink or put in the trash. Bring in unwanted medicine for proper disposal. Support the collection of unwanted and expired pharmaceuticals.	Track pounds of medications collected by HHW and City initiatives. Continue to collect pharmaceuticals at industry managed MED-Project collection program for the County.	Local police departments participated in DEA National Prescription Drug Take-Back Day events on October 24, 2020. Pharmaceuticals were received at approximately 2 service area locations during the event. 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 74,471 lbs of pharmaceuticals in FY 19-20.
Santa Clara County HHW program	City agreement to participate in countywide HHW Program and for County to operate	2018: City of San José and other participating cities signed 3-year funding and cooperative agreements with the County to

[33] Hora, Priya I.; Pati, Sarah G.; McNamara, Patrick J.; and Arnold, William A. Increased Use of Quaternary Ammonium Compounds during the SARS-CoV-2 Pandemic and Beyond: Consideration of Environmental Implications. Environ. Sci. Technol. Lett. 2020, 7, 9, 622–631.Publication Date: June 26, 2020. https://doi.org/10.1021/acs.estlett.0c00437

Message / Program	Implementation & Timeline	Evaluation
The City continues to provide ongoing residential outreach to promote HHW program.	the San José HHW facility continues through June 2021.	participate in the countywide program; County will operate the San José permanent HHW facility as part of program. FY 19-20: County HHW facility served 27,900 residents and safely managed 2,094,046 pounds of hazardous waste: - 5,248 pounds of unwanted or expired medications collected. - 5,857 pounds of used sharps managed.
Flea and tick Switch from spot-on treatments to chewables or tablets.	Participate in BAPPG studies, planning, and outreach activities in or beyond 2020. Develop digital City campaign and discuss future enhancements to the campaign. Develop internal City policy regarding fipronil- and imidacloprid-containing flea and tick topical treatments in 2021.	San José was an active member of BAPPG in 2020 and worked to approve outreach collateral for oral flea and tick alternatives. City staff also developed a digital campaign which garnered over 4 million impressions. Many comments were received on social media posts, which prompted the City to develop FAQ for the campaign.
Wipes Wipes clog pipes	Participate in BAPPG studies, planning, and outreach activities in or beyond 2020. Participate in SFEI-RMP studies of QACs. Develop messaging directing residents to dispose of wipes in the trash can.	Worked with BAPPG and RMP on studies and messaging. Developed social media messaging instructing residents to properly dispose of wipes.
Investigation Work with SFEI-RMP to continue emerging contaminant studies.	Plan for future emerging contaminant studies on pharmaceuticals, microplastics, non-targeted analytes, & other prioritized CECs in or after 2020.	2020: Worked with RMP, SFEI, and national scientists to collect samples for analysis of PFAS, QACs, and Bisphenols. Participated in planning workshops for microplastics health effects and emerging contaminants.

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
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
FOG Contact Tasks	outreach tasks performed by the City's FOG inspectors to enroll FSEs in an online reporting system
FSEs	food service establishments
GCDs	grease control devices
GGI	gravity grease interceptor
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
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
QACs	quaternary ammonium compounds
Quakes	San Jose Earthquakes professional soccer team
Quicksilver	mercury
RAPID	Removing and Preventing Illegal Dumping

RMP	Regional Monitoring Program
SB	Senate Bill
SCCWRP	Southern California Coastal Water Research Project Authority
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCVWD	Santa Clara Valley Water District
SFEI	San Francisco Estuary Institute
Sharks	San Jose Sharks professional ice hockey team
SJ EIC	San Jose Environmental Innovation Center
SJMC	San José Municipal Code
SJ-SC RWF	San Jose-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
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

August 27, 2020

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

DocuSigned by:
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Re: Fiscal Year 2019-2020 HHW Program Update

Participation
The HHW Program served 27,900 residents from July 1, 2019 through June 30, 2020 and safely managed 2,094,046 pounds of hazardous waste. Due to shelter-in-place orders, the program suspended all collection activities on March 16, 2020; collection events were authorized to resume at the permanent facilities on June 10, 2020. As a result, the number of collection events during this fiscal year was reduced by 25% to a total of 134 collection events: 128 at two permanent facilities and 6 at temporary sites strategically located throughout the County. The program was able to serve 289 small business drop-offs including local governments, Goodwill Industries, and The Salvation Army.

Paint
A total of 983,513 pounds[1] of paint and paint related material were collected. Latex paint accounted for 448,679 pounds, and oil-based paint related material accounted for 534,834 pounds. There are thirty-eight (38) take-back locations at retail stores within the county, and several one-day take-back events managed by the paint manufacturers. Paint collected at these locations does not contribute to the above quantities. Worth noting is that take-back events by the paint manufacturers designated Stewardship Operator were suspended with shelter in place and remain so. We expect this to impact paint collections by the HHW Program resulting in increased volumes in the near term.

[1] Correction of prior data – During review for this reporting period, it was determined that the Fiscal Year 2018-2019 HHW Program Update sent to you on July 2019, reported a total of 1,185,323 pounds of paint and paint related materials. This was incorrect. Due to a reporting error from the disposal company, this number was erroneously understated by 148,823 pounds. The correct weight of paint and paint related materials collected during Fiscal Year 2018-2019 is 1,334,146. We recognize that data may have already been reported elsewhere in the intervening period and we regret the error.

Pesticides
The HHW Program collected 169,683 pounds of poisonous liquids, and 91,600 pounds of poisonous solids during the reporting year.

Household batteries
A total of 111,979 pounds of household batteries were collected and recycled. Of that volume, retail take-back stores accounted for 59,662 pounds. Thirty-two (32) stores serve as our network of battery take-back partners. In addition, our battery partners manage their collected rechargeable batteries directly through Call2Recycle, the North American Product Stewardship Organization funded by the producers. Lastly, there are many 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 62,433 pounds of fluorescent lamps were collected during the reporting period. Of that volume, retail take-back stores accounted for 40,064 pounds. The remaining were collected at HHW events. Twenty-five (25) stores serve as fluorescent lamp take-back partners. Similar to batteries, there are other Santa Clara County locations that accept fluorescent lamps that are not part of our network of partners.

Mercury Containing Products
Four hundred fifty (450) pounds (includes thermostats, thermometers and other mercury containing products).

Pharmaceuticals and Sharps
A total of 5,248 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 74,471 pounds of pharmaceuticals via kiosk drop-off sites during the second year of program implementation[2]. The amount collected during this period is more that two and a half times the 29,333 pounds collected by MED-Project during their initial year of rollout and implementation.

A total of 5,857 pounds of used home generated sharps were managed. Similar to pharmaceuticals, a product stewardship plan for sharps collection was 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 sharps disposal[3]. The initial report on home-generated sharps collection will be provided by the approved Stewardship Plan Operator in Spring 2021.

Public Outreach
Staff participated in 12 community outreach events. Our peak season of Spring, when the majority of events are held, was severely impacted by pandemic restrictions.

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[2] MED-Project, LLC Med-Project Annual Report 2020

[3] MED-Project, LLC MED-Project LLC Revised Stewardship Plan - February 4, 2019