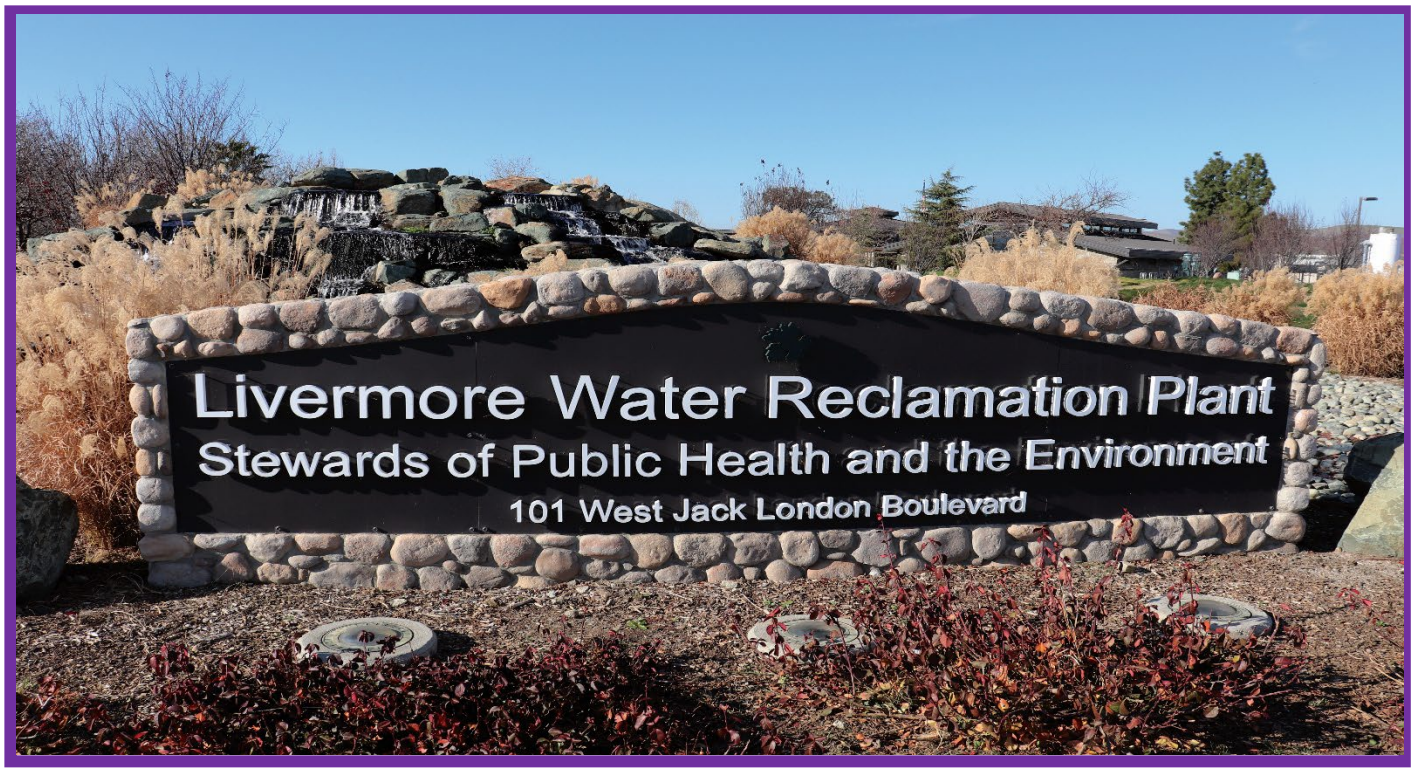
City of Livermore

2021 Pollution Prevention Report



Prepared by: Steven M. Aguiar

Date: February 25, 2022

February 25, 2022

Mr. Michael Montgomery
Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: Debbie Phan

Subject: 2021 Pollution Prevention Annual Report

Dear Ms. Phan:

Enclosed is the 2021 Annual Report for the City of Livermore Pollution Prevention Program covering the reporting period of January through December 2020. The report satisfies all NPDES Pollutant Minimization Program permit requirements for general and targeted programs.

I certify under the penalty of law that this document and all attachments are prepared under my direction in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Steve Aguiar

Steven Aguiar
Environmental Compliance Supervisor
Water Resources Division, Public Works Department
Phone: (925) 960-8126
Email: smaguiar@cityoflivermore.net

cc: Scott Lanphier, Public Works Director

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1. Water Reclamation Plant

The Livermore Water Reclamation Plant (LWRP) provides wastewater collection, treatment, and disposal for approximately 87,955 Livermore residents, local business, industry, and a few areas outside of the City limits including Sandia National Laboratory (SNL) and the Ruby Hills development. The LWRP is located on approximately 40 acres on the Western edge of the City. The down gradient location of the Plant allows most of the City's sewage to be collected by gravity.

The LWRP treated an average of 5.419 million gallons of wastewater per day in 2021. The maximum treated during this period was observed in January 2021 with an average influent of 5.554 million gallons per day. A portion of the LWRP influent is treated to reclaimed water standards and reused within the City. The major utilization of LWRP recycled water was used to irrigate landscaped areas at the LWRP, the municipal airport, Las Positas golf course, Las Positas Junior College, Landscaping along Isabel Avenue/Highway 84 as well as, provide fire protection for the airport hangars and local businesses. Additionally, recycled water is used for restroom toilets and landscaping in the Oaks Business Park development located near Isabel Avenue and West Jack London Blvd.

The LWRP completed the last expansion in July 1993; this increased the firm reliable rated capacity of the plant to accommodate an average dry weather flow of 8.5 MGD. Based on this data the plant can currently accommodate future growth in the service area. Daily monitoring of treatment processes and equipment performance at LWRP helps to ensure continuous compliance with all currently established requirements. Process control samples are taken daily, and analytical results are used to adjust process parameters. The plant's Supervisory Control and Data Acquisition (SCADA) system monitors, controls and notifies operators of malfunctions. All historical data is backed up and saved on a regular basis. To help ensure that critical equipment can be relied upon, the City has a preventative and corrective maintenance program. Maintenance requirements for equipment are catalogued within the computerized maintenance management system (CMMS) and work orders are tracked to ensure that maintenance is performed.

Under the pretreatment program, the City issues wastewater discharge permits on an annual basis to each significant industrial user (SIU), and any other users determined to be of potential concern to the LWRP. The permits contain a statement of duration, a statement of non-transferability, applicable effluent limitations, self-monitoring and reporting requirements, and a statement of applicable penalties. In addition to the self-monitoring performed by SIUs, the City conducts inspections and sampling of each SIU a minimum of once per year. The City has developed an Enforcement Response Plan (ERP) which lists the escalating enforcement procedures used by the City to enforce Federal, State, and Local discharge limitations and regulations. The pretreatment program maintains an inventory of industrial businesses in the City by working with other City departments, reviewing business license information, reviewing planning and building project referrals, and conducting business and industrial park survey inspections. In addition, City staffs

performing inspections under the Stormwater and Pollution Prevention Programs and uses this inspection data to identify facilities of concern to the pretreatment program. Industrial contributions account for approximately 10% of the total flow to the LWRP. The largest users, Lawrence Livermore National Laboratory & Sandia National Laboratory, comprised combined average daily discharge of 254,820 gallons, which represented approximately 4.7 percent of the total influent flow on the average day to the LWRP in 2021.

The City's Pretreatment Program helps educate citizens groups and industrial users about the needs and problems associated with operating a wastewater treatment plant by providing informational brochures and facility tours.

Tetra Tech Inc., a USEPA contractor, last conducted a Pretreatment Compliance Audit (PCA) of the City of Livermore's Industrial Pretreatment Program on April 20-21, 2017. On February 20, 2018, the City of Livermore received a copy of the "Pretreatment Compliance Audit Final Summary Report" sent by the San Francisco Regional Water Quality Control Board. The City submitted a detailed response addressing each of the "Required" actions and "Recommendations" that were contained in the Pretreatment Compliance Audit Summary Report to the San Francisco Bay Regional Water Quality Control Board on April 16, 2018.

The City of Livermore is a part of the statewide "California Water/Wastewater Agency Response Network" (CalWARN). The CalWARN agreement provides the basis for providing and receiving aid between wastewater treatment and collection system agencies in times of major emergencies. Safeguards to minimize accidental discharge from the wastewater treatment plant are built into the design and operation of facilities and equipment. Storage tanks are constructed with the required 110% of secondary capture volume to mitigate any accidental discharge. These are inspected periodically to ensure their integrity. Scenarios for accidental discharge from plant process tanks have been reviewed and it is concluded that any discharge would be minimal. If a discharge should occur, the plant under-drain system would capture and direct all such discharges to the LWRP lined holding basin for proper treatment. The City of Livermore's Engineering Division manages the Capital Improvement Program (CIP) for the Water Resources Division (WRD). All WRD sections contribute to the planning and budgeting efforts for current and future CIP projects. The Engineering Division has assigned an Associate Engineer to implement and manage the CIP for WRD-related projects, as well as any emergency projects that may arise. The Engineering Division is adequately staffed to support current needs of the WRD.

The following provides a summary of the major CIP projects that occurred during 2021.

Sanitary Sewer System:

During 2021, 3 laterals were replaced, and 1 mainline spot repairs were completed by an

on-call contractor. Repairs done in-house within the City's existing sanitary sewer system consisted of 3 mainline repairs and 7 lateral spot repairs, and 2 manhole rehabilitations. Spot repairs are identified as mainline or lower lateral problems found during regular maintenance cleaning or televised sewer inspection by Collection Systems Section staff. Typical repairs include the replacement of pipes with severe offset joints, broken pipe segments, short sags, and damaged manhole channels.

Annual Sanitary Sewer Replacement – CIP Project 201803 / 202203
In some cases, the sewer inspection activities referenced above lead to the identification of pipeline segments that require full replacement instead of spot repair. These identified pipeline segments are replaced using trenchless or open-cut construction methods. These pipeline segments usually are replaced as part of a single Capital Improvement Project.

In 2021, the City of Livermore continued to plan for the upcoming Annual Sanitary Sewer Replacement project. The Annual Sanitary Sewer Replacement project is currently in the design and review stage of the project. The project is currently scheduled to go out to bid Spring 2022 and project completion during Summer 2022.

Treatment Plant:

<u>WRP Aeration Tank Modifications</u>

The Water Reclamation Plant has two aeration tanks, Aeration Tank 1 and Aeration Tank 2, which were originally constructed in 1965 and 1980, respectively. Each tank is sized to treat existing and future build-out flows.

Phase 1 improvements in 2014 consisted of upgrades and repairs to Aeration Tank 1 so that it could be placed into service, and Aeration Tank No. 2 taken out of service. Aeration Tank 2 is being rehabilitated as part of the WRP Phase 2 Aeration Tank Modifications project.

The Phase 2 improvements include replacing equipment in Aeration Tank 2 and structural, process, and energy efficiency improvements to both aeration tanks. The project also includes installing new diffusers, rehabilitating equipment, modifying piping and appurtenances, and repairing concrete structures. The installation of new diffusers will reduce the long-term energy requirements at the plant. Other rehabilitations will allow either tank to be used for full treatment and, therefore, provide full system redundancy. Phase 2 was completed in April 2021.

<u>WRP Emergency Generator</u>

The WRP Emergency Generator Project involves installing an emergency generator at the

Water Reclamation Plant. The emergency generator will provide emergency power for all electrical loads and allow the Water Reclamation Plant to sustain wastewater treatment during a power outage. The generator was commissioned for manual operation in October 2020. Automatic transfer switching is under construction and is estimated to be completed in January 2022, pending required coordination with Pacific Gas and Electric Company.

WRP Primary and Secondary Treatment Improvements

The WRP Primary and Secondary Treatment Improvements Project includes modifications to the Influent Pump Station, Primary Effluent Pump Station, Primary Clarifiers, Secondary Clarifier No. 2 and Odor Control. Replacing aged equipment will increase the efficiency and reliability of plant operations. Structural rehabilitation will extend the useful life of treatment systems. Adding an open channel grinder will allow for bypassing the bar screen should the bar screen fail, improve treatment, and reduce maintenance of downstream equipment. Increasing the size of the odor control treatment system will increase ventilation, reduce odors, and reduce future corrosion. The odor control system will be expanded to include the primary effluent pump station and the grit building. The project design started in October 2020 and will be completed by December 2021.

Anaerobic Digester Improvements

Anaerobic Digester #1 was cleaned in December 2021 and will be placed back into service in January 2022. Digesters #2 and #3 are scheduled to be cleaned the first half of 2022. Sludge line cleaning, temperature probes and valves are scheduled to be replaced as part of our maintenance program.

2. Source Control Section

The City of Livermore Water Resources Division's Source Control Section implements the City's Pollution Prevention, Pretreatment, and Stormwater Programs. The Source Control Section is typically staffed with three Source Control Inspectors, one Source Control Coordinator (Senior Inspector), and one Environmental Compliance Supervisor. During this reporting period, the Source Control Coordinator position remained unstaffed. Recruitment for this position was temporarily placed on hold due to Covid-19 issues. The City will recruit and staff this position during 2022.

Under the Pretreatment Program, the City issues wastewater discharge permits on an annual basis to each significant industrial user (SIU) and any other users determined to be of potential concern to the LWRP. The permits contain a statement of duration, a statement of non-transferability, applicable effluent limitations, self-monitoring and reporting requirements, and a statement of applicable penalties. In addition to the self-monitoring performed by SIUs, the City conducts inspections and sampling of each permitted facility at least once a year. The City has developed an Enforcement Response Plan (ERP) which lists the escalating enforcement procedures used by the

City to enforce Federal, State, and Local discharge limitations and regulations. The pretreatment program maintains an inventory of industrial businesses in the City by working with other City departments, reviewing business license information, reviewing planning and building project referrals, and conducting business and industrial park survey inspections. Source Control sections staff also performs inspections under the Stormwater and Pollution Prevention Programs to identify facilities of concern for the Pretreatment Program.

The City of Livermore is subject to the requirements of the Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049 NPDES permit (MRP 2.0) issued to the City of Livermore and the Alameda County Clean Water Program. This permit requires the City to implement the following:

a. Perform commercial and industrial facility inspections of all facilities with the potential to impact stormwater every five years.
b. Review plans to ensure that the stormwater treatment design and controls are incorporated into new developments.
c. Inspect stormwater treatment controls to verify proper functioning and maintenance.
d. Identify and abate illicit discharges.
e. Perform public outreach educating residents about stormwater pollution and pollution prevention.

3. Previous Report Comments

The City of Livermore received comments from the San Francisco Regional Water Quality Control Board in a June 21, 2021, letter indicating that the City's Pollution Prevention Program requirements were fulfilled.

4. Pollutants of Concern and Source Reduction Tasks

Mercury: Mercury remains the first pollutant of concern for the LWRP Pollution Prevention Program as required by our NPDES permit. Current mercury sampling data continues to demonstrate that the LWRP's effluent remains well below the current effluent limit contained in our permit.

The Mercury Reduction Menu prepared by EIP Associates for the Bay Area Pollution Prevention Group (BAPPG) was used to identify and evaluate potential sources and control strategies. The Mercury Reduction Menu summarized mercury reduction programs for sources such as hospitals/clinics, dental offices, laboratories, educational institutions, and the more general group of commercial businesses and households. Comparing this Menu to the LWRP service area yielded some potential sources to evaluate further, such as Valley Memorial Hospital (currently Stanford Health Care - Valleycare Medical Center), dental offices, Lawrence Livermore National Laboratory,

and Las Positas College. While the flow to the LWRP is roughly 90% domestic, our service area does contain businesses with the potential for elevated mercury levels. The following tables provide a description of the Proposed Mercury Program Tasks, as well as a status report summarizing the status of each proposed task.

Proposed Mercury Reduction Tasks

Regional Efforts	
Proposed Task	**Status/Description/*Discussion***
Participate w/Regional Board staff and BAPPG to define "baseline" mercury P2 program	**Status: <u>Ongoing</u>**. Continue to work with BAPPG and Regional Board staff to identify the minimum tasks in acceptable mercury P2 program for various agencies. Possible components: ✓ Minimum source ID efforts ✓ Required Program Elements or a Menu of Elements to pick from ✓ "Tiered" requirements by POTW size or compliance needs
Participate in BAPPG Dental Subcommittee	**Status: <u>Completed</u>**. Participated in the Dental Subcommittee to evaluate Dental BMPs, Self-certification and Inspection Checklists, and outreach materials.
Contribute to Regional training efforts as possible (CWEA, WRPPN, etc.)	**Status: <u>Ongoing</u>**. Participate in CWEA P3S Committee to help provide conferences and/or presentations as time allows.

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Hospital/Medical Offices	
Proposed Task	**Status/Description/*Discussion***
Evaluate Valley Memorial Hospital Sampling Data	**Status: <u>Completed</u>**. Review historic mercury sampling data for Valley Memorial Hospital (VMH) to determine if we can estimate a loading, or if all data is below detection limits. If possible, estimate loading from VMH. *Historical sample data for 1997-2002 was reviewed. Almost all the Hg analysis data was reported as Non-Detect, as the results were below the 0.0002 mg/l detection limit.*
Collect Additional Low-Detection Limit Samples if Necessary	**Status: <u>Not Complete/Removed from list.</u>** Low-Level Hg sampling will be performed at VMH during the next scheduled monitoring event. Evaluate if current loading is above background/residential levels. If so, conduct outreach at VMH. *Due to the changes in operation, the VMH site is no longer used as a hospital; therefore, such sampling would not yield relevant data.*
Conduct Education/Outreach at Valley Memorial Hospital	**Status: <u>Completed</u>.** Provide mercury outreach materials to VMH staff for distribution. Offer outreach presentations to VMH staff and conduct up to three presentations for staff if requested. Staff has distributed mercury outreach material including a self-assessment audit checklist. *No requests for presentations had been received.*

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Dental Offices	
Proposed Task	**Status/Description/*Discussion***
Revise Dental Program to bring into compliance with 40 CFR Part 441	**Status: <u>Completed</u>.** During this reporting period, the City of Livermore updated and re-launched its Dental Amalgam Pollution Prevention Program. The City's existing program had been in place for many years but had to be updated to maintain compliance with recently promulgated regulations under 40 CFR 441. This update included creating two new Dental Amalgam self-certification forms as well as generating a new inspection form. On April 30, 2020, the City of Livermore mailed self-certification form packets to the 69 dental facilities in its service area with a Standard Industrial Classification (SIC) of: 8049, 8071, 8021, or 8072. The initial response from these facilities was delayed due to restrictions set on dental facilities during the beginning of the COVID-19 pandemic. During the reporting period, however, the City ultimately received responses from 66 of the 69 facilities. Based upon the review of these responses, it was determined that 47 of these facilities required permitting under the City's new Dental Amalgam Pollution Prevention Program. Follow-up actions are currently underway to obtain the required responses from the remaining 3 facilities. During 2021, the City implemented permit fees to cover the costs of the Dental Program. Permit fee collection starting July 1, 2021.
Maintain Dental Office Database	**Status: <u>Ongoing.</u>** Review business license listing, internet, or other sources to update a comprehensive list of all dental offices in Livermore. *Staff continues to update this facility list while implementing the Dental Mercury Pollution Prevention Permit Program.*

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Collect samples from representative dental offices to evaluate loading	**Status: <u>Completed</u>**. Identify dental offices where wastewater sampling is feasible. Review offices practices to ensure samples will be "representative" of average dental office. Collect samples and analyze for mercury using low and normal detection limits. Estimate flow from each location to calculate individual site loading. Average results and multiple by the total number of dental offices to estimate total dental contribution. *This task was completed, and results are summarized in the 2000/2001 Annual Pollution Prevention Report*.
Permit Dental Offices using CDA and BAPPG Dental Self-certification Checklists	**Status: <u>Completed/Ongoing.</u>** Mail mercury outreach packets to all local dentists. Packets include dental practice information regarding amalgam use and mercury waste disposal, and two self-certification statements declaring that the facility has implemented the California Dental Association and BAPPG's accepted best management practices (BMPs) relating to amalgam use and mercury waste disposal. *These materials were sent along with the 5-year dental pollution prevention permits issued to all dental facilities during reporting periods 2003, 2004, 2009, 2014, and 2020.*
Audit Dental Offices using BAPPG Dental Inspection Checklist	**Status: <u>Completed/Ongoing</u>.** Contact dental offices to set up site visits/inspections. Meet with office manager or ES&H staff to explain program. Conduct walk-through of mercury handling procedures, separator cleaning practices, and disposal of mercury-containing wastes. Verify that facilities are implementing the BMPs as stated in their self-certification statements. Provide additional outreach materials as appropriate. *All dental facilities will receive an audit a minimum of once during the 2020-2025 permit cycle.*

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Lawrence Livermore National Laboratory	
Proposed Task	**Status/Description/*Discussion***
Review sampling data to evaluate loading	**Status: <u>Completed</u>**. Review historic mercury sampling data for LLNL to ensure adequate data exists to determine loading. Calculate the percentage of LWRP mercury contributed by LLNL. *This task was completed, and results are summarized in the 2000/2001 Annual Pollution Prevention Report*.
Conduct Education/Outreach to LLNL and Sandia staff	**Status: <u>Ongoing</u>.** Inform LLNL Wastewater Monitoring and Guidance Group to inform them of mercury issue. Determine which areas of LLNL have on-going or current mercury discharges. Target area with current mercury use for outreach efforts. Develop targeted outreach, including bulletins, lab sink "reminder" stickers, etc. Perform general mercury outreach through LLNL newsletter, and at employee outreach events. S*taff has participated in the following LLNL employee outreach events since 2012: Earth Day Week 2012, Farmers' Market 2014, and Earth Day Festival 2018. Staff has kept LLNL staff informed regarding the TMDL and loading allocations. No events held in 2020 due to Covid-19.*
Evaluate plumbing/trap cleaning opportunities	**Status: <u>Completed</u>.** Determine areas of historic mercury use & possible contamination or legacy pollutants in sewer system. Conduct trunk line sampling, if possible, to identify potential "hotspots". Review sampling from historic trunk line cleaning or sewer relining activities. Review cost/benefit of cleaning sewers to reduce leaching of mercury from sewer sediments. *LLNL submitted evaluation on August 7, 2008.*
Review LLNL "internal" mercury discharge limit	**Status: <u>Completed</u>**. Review "average" mercury concentrations of retention tank discharges to determine if significant amounts of mercury are being discharged from current operations. Evaluate amount or percentage of mercury discharged above LWRP local limits but below LLNL Internal Discharge Limits to quantify reduction possible through enforcing LWRP limit for all internal LLNL discharges. *LLNL submitted evaluation on August 7, 2008.*

Other Commercial Businesses	
Proposed Task	**Status/Description/*Discussion***
Review past sampling and local limits submittal to evaluate loading	**Status: <u>Ongoing</u>.** Review loading calculations from Local Limits submittal to estimate the contribution from permitted industrial users and/or unpermitted commercial users. Use this value in source identification estimates to improve mass-balance. *Staff routinely reviews monitoring data from permitted facilities and addresses mercury-related issues as required.*
Conduct Education/Outreach	**Status: <u>Ongoing</u>.** If any permitted industrial users are identified with significant mercury loading, provide educational materials and outreach visits to inform them of the mercury program. *Staff routinely reviews monitoring data from permitted facilities and addresses mercury-related issues as required.*
Encourage proper disposal of lamp and mercury-containing equipment	**Status: <u>Addressed by Universal Waste Rule/CUPA.</u>** Distribute information on Universal Waste Rule provided by the Livermore Pleasanton Fire Department (LPFD) or Department of Toxic Substances Control during future inspections, if available. *Although LPFD is tasked with enforcing the Universal Waste Rule as the CUPA, Source Control staff will continue to encourage and promote proper disposal of lamp and mercury-containing equipment.*

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Las Positas College	
Proposed Task	**Status/Description/*Discussion***
Review any existing monitoring data	**Status: <u>Completed.</u>** Review past commercial monitoring data for mercury. *Data set was limited. Additional sampling may be required to perform a thorough analysis.*
Collect additional samples as necessary to quantify loading	**Status: <u>Not Completed</u>**. Identify appropriate sample location for the College and collect samples for low-level mercury analysis. Review and compare results to domestic concentrations. If elevated concentrations are noted above "background" levels, investigate potential sources at College (laboratories, etc.). *Future sampling events shall be evaluated as deemed necessary.*
Conduct Education/Outreach as necessary	**Status: <u>Not Completed.</u>** If warranted by above source identification efforts, conduct targeted outreach to sources identified (i.e., laboratories' chemical handling/disposal information).

Livermore Water Reclamation Plant	
Proposed Task	**Status/Description/*Discussion***
Prohibit Dry Weather Diversion from Stormwater Pump Stations to LWRP	**Status: <u>Completed; February 2009</u>**

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Residential	
Status/Description/*Discussion*	**Status/Description/*Discussion***
Support SB 633 Mercury Products Ban	**Status: Completed.** *Letters supporting the product ban were sent to members of the Senate.*
Review past sampling and local limits submittal to evaluate loading	**Status: Completed.** Review residential mercury concentration and loading data. Compare to total LWRP mercury loading.
Conduct Education/Outreach	**Status: Ongoing.** Distribute "general" outreach information on wastewater and stormwater pollution prevention (including mercury information as available) at community events. Distribute mercury information to residents participating in the thermometer take-back program at LWRP. *The Water Resources Communications Representative continues to perform this task by participating in community events.*
Conduct Mercury Thermometer Take-Back Program	**Status: Completed.** Distribute mercury-free digital thermometers in exchange for old mercury-containing ones. This program was terminated in 2018.

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Tritium: In 1997, Tritium was selected as a pollutant of concern to protect LWRP's recycling and reuse opportunities using the newly built microfiltration/reverse osmosis facility. The reverse osmosis facility was shut down in 1999, and there are no plans at the present time to utilize this facility.

Tritium remains on the list as the second pollutant of concern since it's routinely used by Lawrence Livermore National Lab (LLNL) as a target material for laser experiments to produce energy. LLNL provides a split of one daily sample a month to an off-site contract analytical lab. The analytical results continue to be well below the Department of Energy's annual tritium limit of 5 Curies.

Copper and Cyanide: LWRP's NPDES permit requires that copper and cyanide remain listed as pollutants of concern. Source Control Section staff conducts activities to address these targeted pollutants, including a comprehensive inspection/survey and sampling program of vehicle service facilities, commercial printers, metal finishers, semiconductors, electronic component manufacturers, photo processors, and other commercial and industrial users on an on-going basis. For additional information on the program, please see Section 8. Discussion of Current Efforts and Progress.

Fat, Oils and Grease (FOG): FOG was selected as a pollutant of concern to help the LWRP meet the primary objectives of the FOG Control Program in 2008. The Program's primary objectives include the following items: proper management of residential and Food Service Establishment (FSE) fats, oils, and grease (FOG); proper operation and maintenance of FSE grease removal devices (GRDs); proper operation and maintenance of tallow bins; and proper record keeping of GRDs and tallow bins. As part of the FOG Control and Stormwater Programs, oil/grease interceptors are inspected twice a year by Collections/Source Control Section staff; and oil/grease traps, Big Dippers, Trapzillas, tallow bins and maintenance records are inspected once every three years by Source Control Section staff. During this reporting period, 193 FOG (Interceptor) inspections were performed

Source Control and Collection Sections staff continue to map Livermore's Food Service Establishments in the City's Geographical Information (GIS) System to effectively manage the FOG Control Program. This tool has enabled Collections/Source Control Section staff track the following: existing and new FSEs with and without GRDs, vacant properties with GRDs, date of last FSE/GRDs' inspections, condition of GRDs, and potential sources for Sanitary Sewer Overflows (SSOs). In addition, the GIS System helps Collections Section staff identify and monitor FOG Hot Spots downstream of existing FSEs with GRDs in "Problem" or "Poor" condition.

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Collections Section staff cleans and maintains the entire Collection's system every three years. Staff has identified some sanitary sewer mainlines with needing additional cleaning and are scheduled every 18 months. As a result of the FOG Control Program and the City's aggressive inspection/cleaning/maintenance/television schedule, there has been a decrease in the total Sanitary Sewer Overflows (SSOs) since 2005. Please see Table 4.A. for SSO details.

Table 4.A. City's Sanitary Sewer Overflows (SSOs) Results 2005-2019

Calendar Year	Number of SSOs attributed to FOG	Total Number of SSOs
2005	1.5	17
2006	1	8
2007	0	3
2008	0	3
2009	2	2
2010	1	5
2011	1	6
2012	0	0
2013	0	4
2014	0	3
2015	0	1
2016	1	4
2017	2	3
2018	0	7
2019	0	3
2020	0	5
2021	2	4

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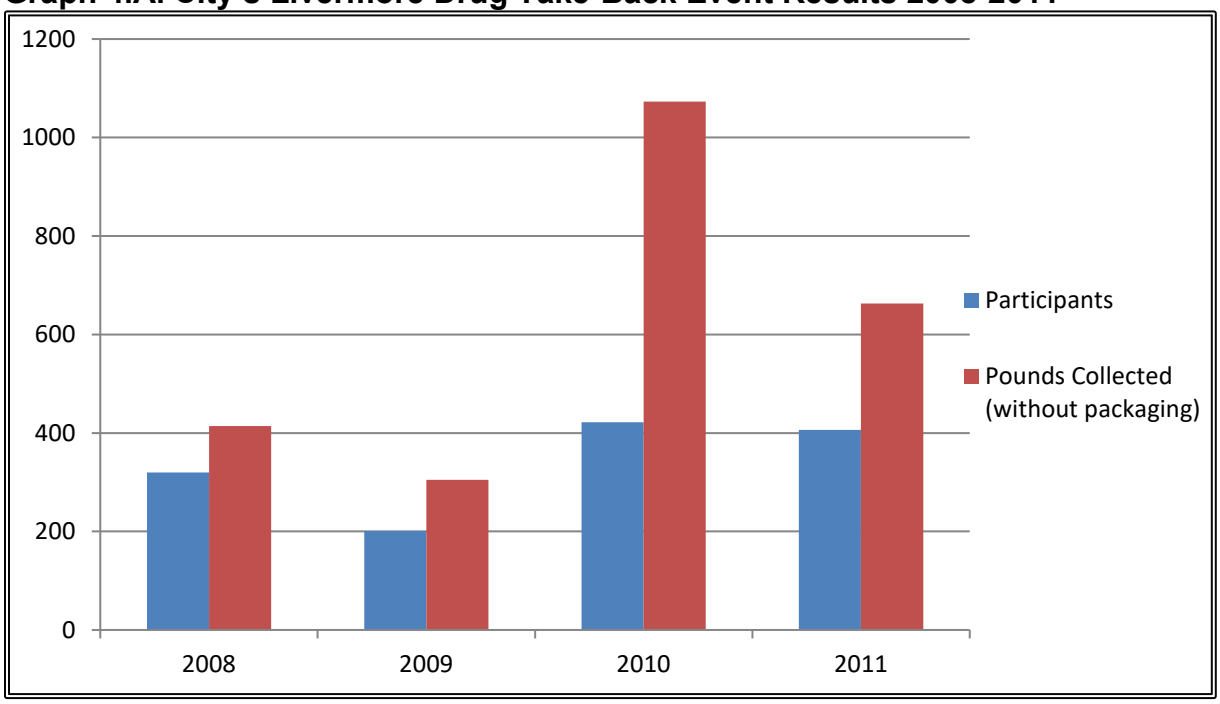
Pharmaceuticals: The City of Livermore Water Resources Division with the assistance of the Livermore Police Department (LPD) hosted annual "Livermore Drug Take-Back Events" from 2008 to 2011 to help residents safely and properly dispose of unwanted prescription and over-the-counter drugs. In 2010, Source Control Section staff selected pharmaceuticals as a pollutant of concern based on the growing concerns and documented prescience of these compounds in water and wastewater. The City's Drug Take-Back Events were successful as demonstrated by the graph shown below.

Graph 4.A. City's Livermore Drug Take-Back Event Results 2008-2011



From 2012 to present, LPD staff with the assistance of the Drug Enforcement Administration (DEA) continues to host bi-annual, "Livermore Drug Take-Back Day". These DEA National Prescription Drug Take-Back Days remain popular and successful events as demonstrated by the total pounds collected (with packaging). Please see Table 4.B. for Take-Back Days details.

Table 4.B. DEA's National Prescription Drug Take-Back Day Results 2012-2020

Event Date	Pounds Collected
April 28, 2012	772.0
September 29, 2012	491.0
April 27, 2013	831.3

October 26, 2013	469.2
April 27, 2014	540.7
September 29, 2014	467.3
September 26, 2015	547.0
April 30, 2016	500.0
October 17, 2016	200.0
April 29, 2017	1,029.2
October 28, 2017	602.1
April 28, 2018	847
October 27, 2018	596
April 27, 2019	684
October 26, 2019	436
October 24, 2020	592
April 24, 2021	703.2
Total Pounds collected to Date	**10,308**

Polychlorinated Biphenyls (PCBs): The Mercury Watershed Permit Order No. R2-2007-0077 was amended in 2011 by Order No. R2-2011-0012 to add waste discharge requirements for Polychlorinated Biphenyls (PCBs). The amendment contains effluent limitations, monitoring, reporting, and source identification and control requirements. PCBs were not identified as a significant pollutant of concern because the LWRP influent and effluent samples analyzed for regulatory compliance on February 5, 2014, and August 6, 2014, were non-detectable, and the East Bay Discharger Authority's (EBDAs) 2014 monthly effluent samples for regulatory compliance were non-detectable. (EBDA's monthly limit for PCB's is 0.012 ppb and maximum daily effluent is 0.017 ppb.) The City continues to be in compliance with the effluent limits specified in Order R2-2011-0012; however, Provision C.7 of Order No. R2-2011-0012 requires the City to submit source identification and control evaluation results. To satisfy this requirement, the City continues to include a PCBs status report update in its Annual Pollution Prevention Reports.

PCBs are synthetic chemicals which are no longer produced in the United States, but as a result of its past use are still found as a legacy pollutant in the environment. PCBs were used as coolants and lubricants in transformers, capacitors, and other electrical equipment because of their superior thermal and electrical insulating properties. The manufacture of PCBs was banned in the U.S. in 1979 based on evidence that PCBs

accumulate in the environment and can cause harmful health effects. Products made before 1979 that may contain PCBs include old fluorescent lighting fixtures, electrical devices with PCB-containing capacitors, and hydraulic oils. Today, PCBs can still be released into the environment from poorly maintained hazardous waste sites, illegal or improper dumping of PCB wastes, leaks or releases from electrical transformers, and disposal of PCB-containing consumer products into landfills not designed to handle hazardous waste.

Order No. R2-2011-0012 Amended the Mercury Watershed Permit Order No. R2-2007-0077 to include PCBs effluent limits and monitoring and reporting requirements. The City, listed as a municipal discharger, is subject to the Order's requirements. Provision V.C.7 of this order requires the City to evaluate and identify controllable sources of PCBs to the treatment plant. The Provision identifies these sources as:

- PCBs contributions to wastewater from industrial equipment; and
- PCBs contributions to wastewater from buildings with PCB-containing sealants that are scheduled for remodeling or demolition and identified as pilot projects required by the Municipal Regional Stormwater Permit Order No. R2-2015-0049 (MRP) Provision C.12.b.

Source Control Section staff receives training on identifying potential PCBs-containing equipment using the BASMAA and Alameda County Clean Water Program (ACCWP) Commercial/Industrial Inspector Training Materials. If Inspectors find a potential source of PCBs during their commercial or industrial inspections, they document their findings in their pretreatment and stormwater inspection forms. To date there have been no sources of PCBs found at commercial or industrial facilities.

The City of Livermore participated in the Alameda County Clean Water Program's "PCB Reduction Strategy Workgroup" in 2014. The ACCWP along with its consultant, Geosyntec, developed a PCB inspection and reduction plan. Although the primary focus of this plan relates to possible PCB contamination in stormwater runoff, the analysis lends itself to assist in the City's Pollution Prevention and Pretreatment Program efforts as it helps identify properties that possess the potential to have PCBs or legacy PCB contamination on site. During this process, 28 parcels were identified as "old urban-industrial" parcels that based on historical zoning and land use data could have the potential to be a PCB source. City staff reviewed all development data regarding these parcels and determined that 90% of these PCB potential "hot spots" had been redeveloped after 1980. This resulted in eliminating these parcels from future investigation as PCB sources. The largest parcels remaining on this list of potential sites are the Department of Energy owned parcels that are occupied by Lawrence Livermore National Laboratory and Sandia National Laboratory. Information regarding PCBs received from Lawrence Livermore National Laboratory include updates on capacitor/transformer disposal site cleanup reports, and pre-1974 building lists with demolished/shutdown dates. These lists were forwarded to Geosyntec for data analysis and hot spot re-assessment.

On June 26, 2019, The City Council of the City of Livermore adopted Resolution No. 2019-093 which was a resolution adopting a program for managing polychlorinated biphenyls in building materials during the demolition and authorizing the City Manager to develop and promulgate policies and requirements to enact the program.

5. Employee Outreach Efforts

The Water Resources Division conducts outreach events for City staff to ensure they are aware of the City's pollution prevention efforts and to identify ways to reduce and prevent pollutant discharges from City facilities.

Typically, the Water Resources Division hosts an information booth at the City of Livermore's Health and Safety Fair. At the booth, staff promote water conservation, pollution prevention, integrated pest management, and safer chemical alternatives for at-home use. Due to COVID-19, the 2021 Health and Safety Fair was canceled.

6. Public Outreach Efforts

The Water Resources Division's Environmental Education Program is comprised of four components: (1) Events, (2) Programs, (3) Professional Trainings, and (4) Miscellaneous Outreach. The following is an overview of each component:

- **Events:** Staff attends local events such as festivals, farmers' markets, and creek clean-up events to educate the public about pollution prevention. Staff also place conditions and requirements on Special Use Permits issued to event vendors regarding proper disposal of used cooking oil wastes and litter/garbage removal.
- **Programs:** Staff routinely provide tours of the Livermore Water Reclamation Plant, lead the Sewer Science Laboratory program for high school students, and teach in-class elementary school programs focused on stormwater pollution, wastewater treatment, and water conservation.
- **Professional Trainings:** Water Resources Division staff provide City programs' information to professionals at trainings, workshops, and conferences.
- **Miscellaneous Outreach:** Staff develops general stormwater and sewer pollution prevention messages in that appear in various newsletters, utility bills, websites, and social media accounts.

Public Outreach Events

Due to COVID-19, many of the events that the Water Resources Division typically attends or hosts were canceled. This included the Lawrence Livermore National Laboratory Earth Day Festival, the Las Positas College Earth Day Festival, the Livermore Downtown Street Festival, the City of Livermore's Key to City program, the

Livermore Public Works Open House, Community Service Day, and the Water Resources Division's Trick or Treatment Open House. However, during this reporting period City staff were still able to participate in nine community events and interacted with over 700 participants.

Table 6.A. 2021 Public Outreach Events Summary

Event	Date(s)	Engagement	Pollution Prevention Focus
Tri-Valley High School Career/Apprenticeship Fair (Virtual) (Livermore Valley Joint Unified School District)	February 2021	200 participants	Careers in Environmental Compliance
Gardening with Natives Webinar (Cosponsor with Zone 7 Water Agency)	March 10, 2021	71 participants	Integrated Pest Management
Science Odyssey (Virtual) (Livermore Valley Joint Unified School District)	March 2021	75 participants 9 awards presented	All
"The Story of Plastic" Virtual Film Screening (City of Livermore Environmental Services Division)	April 20 – 27, 2021	79 participants	Litter Reduction
Grow Food the Waterwise Way Webinar (Webinar led by Our Water, Our World)	April 22, 2021	71 participants	Integrated Pest Management
Drug Take-Back Event (Livermore Police Department)	April 24, 2021	703.2 lbs. collected	Pharmaceuticals
Bringing Back the Natives Garden Tour (Virtual) (Cosponsor with Bringing Back the Natives)	April & May 2021	9,400 YouTube views	Integrated Pest Management
Laundry-to-Landscape Greywater Systems Webinar (Webinar led by Greywater Action)	August 25, 2021	274 participants	Pollution prevention considerations when installing greywater systems

Drug Take-Back Event (Livermore Police Department)	October 23, 2021	210 lbs. collected	Pharmaceuticals

The Source Control Program places conditions and requirements on Special Use Permits issued for community events during the reporting period and distributed the "*Food Vendor Operations Best Management Practices"* brochure to food vendors. The Source Control conditions and requirements ensure the following: (1) food vendors properly disposing of their used cooking oil and wastewater, (2) event coordinators pick up any litter/debris after the events, and (3) the City of Livermore Streets Section properly sweep the streets after the events. However, due to the continuing Covid-19 pandemic, no such events occurred during this reporting period

Public Outreach Programs

Due to COVID-19, many of the Water Resources Division pollution prevention public outreach programs were canceled. This included the Livermore Teen Academy, the Sewer Science Laboratory program, in-class elementary school presentations, and Livermore Water Reclamation Plant tours. In response, the City of Livermore developed new ways to interact the public remotely about pollution prevention topics.

In November 2020, the City of Livermore launched the Livermore Asset Management Geocache Route. This route led residents to five locations within Livermore to learn more about assets that the Public Works Department manages. One of the geocache locations was the Livermore Water Reclamation Plant. When participants found the geocache, they had to complete a scavenger hunt quiz that taught them about the City's sewer and stormwater systems. Once participants completed the route, they were awarded with a prize. Over 50 copies of the *Clean Water Activity Book* were distributed as prizes during 2021.

In 2020, the City of Livermore began offering free stormwater educational materials to Livermore elementary school teachers and created a new webpage with downloadable stormwater and pollution prevention educational resources.

During 2021, five teachers requested educational materials from the City of Livermore. The City of Livermore distributed 38 Pest or Pal activity books, 333 pollution prevention magnets, and 72 Clean Water Program activity books free of charge to these teachers.

Table 6.B. 2021 Public Outreach Programs Summary

Program	Ages	Participants	Date
Livermore Asset Management Geocache Route	All Ages	636	November 2020 – July 2021

Stormwater Classroom Presentation (Virtual)	3rd Grade	26	April 21, 2021
Educational Materials Donations	1st, 2nd, 3rd, and 4th Grade	394	January – June 2021

Miscellaneous Outreach

In addition to in-person programs and events, the City of Livermore promotes pollution prevention through (1) websites, (2) utility billing messages and inserts, (3) newsletters, and (4) social media.

Websites

The City of Livermore administers or contributes content to six different websites that have messaging related to stormwater, including preventing pollution, properly disposing of household waste, reducing garden runoff, and general information about local watersheds.

- City of Livermore website (www.cityoflivermore.net)
- Livermore Sanitation website (www.livermoresanitation.com)
- Livermore Recycles website (www.livermorerecycles.org)
- Tri-Valley Adopt a Creek Spot website (www.trivalleycreeks.org)
- Tri-Valley Waterwise website (www.trivalleywaterwise.com)
- Living Arroyos website (www.livingarroyos.org)

Utility Billing Messages

The City of Livermore issues monthly bills to its non-residential sewer service customers. Each of these bills is printed with “Latest News” messages, which regularly focus on properly disposing of hazardous waste and reporting storm drain pollution.

Table 6.C Pollution Prevention Messages on Non-Residential Sewer Service Bills

Bill Date	Message
Jan 2021	Help protect your local waterways – place used PPE in the trash. Littered gloves and masks can easily be washed into our storm drains, polluting our local creeks and streams. Let’s work together to keep Livermore safe and clean!
Mar 2021	Disposable wet wipes, toilet cleaners, and similar products that are labeled “flushable” can cause toilets to back-up and clog the sewer system, resulting in costly cleanup for your home or business. Remember to throw used wipes away in your grey garbage cart or bin instead.

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Apr 2021	Have you ever wondered where your water goes once it disappears down the drain? Take a virtual tour of the Livermore Water Reclamation Plant to see what happens! Visit http://bit.ly/LivermorePlantTour to watch today.
Jun 2021	Did you know fluorescent light bulbs and tubes cannot be placed in your curbside garbage carts or bins? Fluorescent bulbs contain small amounts of mercury, which can pose a serious risk to human and environmental health. Visit www.recyclewhere.org to find nearby locations where you can safely recycle your fluorescent bulbs.
Jul 2021	Help protect the environment by reporting storm drain pollution. Only rain should go down the storm drain, so any spills or dumping of motor oil, paint, pesticides, etc. should be reported. To report a spill or illegal discharge, call the City of Livermore Water Resources Division at (925) 960-8100 Monday through Friday, 8:00 a.m. to 4:00 p.m. or (925) 960-8160 outside of business hours.
Sep 2021	Sweep paved areas and pick up litter around storm drains frequently to prevent flooding and pollution. Remember to clean out storm drains annually before it rains to prevent them from clogging.
Oct 2021	Do you have leftover hazardous materials like chemicals, paint, or pesticides that need to be disposed of? Drop off them off at the Livermore Hazardous Waste Facility, located at 5584 Ribera Street. Learn more at http://bit.ly/BusinessHW.
Nov 2021	Pouring fats, oil, & grease (FOG) down sinks can cause backups & clogged pipes. Protect your home or business from plumbing issues by putting small amounts of solid FOG (less than a cup) in your organics cart or bin. Larger amounts & liquid FOG can be dropped off at a Household Hazardous Waste Facility. Visit bit.ly/BusinessHW for facility hours/locations.
Dec 2021	Show your customers that your company cares about the environment by becoming a California Green Business! Along with receiving statewide recognition, business often discover that green business practices lead to lower utility bills. Visit greenbusinessca.org to learn more.

The City of Livermore contracts its solid waste services through Livermore Sanitation and creates quarterly inserts for their bills. These inserts often include information related to pollution prevention.

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Table 6.D Pollution Prevention Messages in Solid Waste Service Bills

Date	Bill Type	Article Topic & Link to Bill Insert
Jan 2021	Single-Family Residential	Minimize stormwater pollution by properly maintaining your vehicle
Mar 2021	Commercial	Hazardous waste disposal
Apr 2021	Single-Family Residential	Proper chemical and paint disposal
May 2021	Commercial	California Green Business Network
Jul 2021	Single-Family Residential	Curbside cooking oil, motor oil, and battery recycling
Oct 2021	Single-Family Residential	Fats, oils, and grease disposal

Newsletters

The Water Resources Division routinely incorporates pollution prevention topics into City of Livermore print newsletters, which are mailed to all addresses in Livermore two to four times a year.

In late 2020, the Water Resources Division created its own email newsletter to share sewer and stormwater related articles with the public. These emails are now sent quarterly to 7,000 residents.

Table 6.E Pollution Prevention Messages in Newsletters

Date	Article Topic & Link to Newsletter
Jan 2021	Picking up after pets
Mar 2021	Integrated Pest Management (IPM), upcoming gardening webinars
Apr 2021	Integrated Pest Management (IPM), upcoming gardening webinars
Apr 2021	Integrated Pest Management (IPM)
Aug 2021	Greywater system webinar

Social Media

The City of Livermore administers or contributes content to nine different social media accounts that post messages related to stormwater, including preventing pollution.

Platform	Account Handles
Facebook	@CityofLivermore @LivermoreRecycles @TriValleyCreeks @LivingArroyos
Twitter	@CityofLivermore @LivermorePW @LivingArroyos
Instagram	@CityofLivermore
Nextdoor	City of Livermore

The Water Resources Division conducts outreach events for City staff to ensure they are aware of the City's pollution prevention efforts and to identify ways to reduce and prevent pollutant discharges from City facilities. Typically, the Water Resources Division hosts an information booth at the City of Livermore's Health and Safety Fair. At the booth, staff promote water conservation, pollution prevention, integrated pest management, and safer chemical alternatives for at-home use. Due to COVID-19, the "in-person" 2020 Health and Safety Fair was canceled.

7. Pollutants of Concern Source Reduction Evaluation

Evaluating the effectiveness of pollution prevention efforts is a difficult task, especially in the area of very low-level pollutants such as mercury. The LWRP has fairly high and consistent removal efficiency rates with regards to mercury, copper, and cyanide. Additionally, the LWRP's effluent consistently meets water quality objectives for all pollutants. Therefore, evaluating effectiveness by examining effluent data is not an effective tool. Influent concentrations, however, may be used as a potential effectiveness measurement where possible.

Modifications to these proposed criteria to describe the goals of each item more fully have been made in response prior years comments from Regional Board staff. A list of potential questions to evaluate outreach events was provided by Board staff and will be used as appropriate for targeted outreach activities. Where appropriate, some activities, such as general outreach/education events aimed at raising general awareness or promoting a combination of messages, will continue to be evaluated based on the

number of participants, the number of materials distributed, number of impressions, or other activity-based criteria. Wherever possible, additional criteria to assess the impacts of our efforts on increasing awareness or changing behavior have been added. A current update or description of the effectiveness measured is contained in ***"Italics"*** under the "Objective/Goal" column for those items evaluated during this reporting period.

Criteria Used to Evaluate Control Effectiveness

Overall Effectiveness – LWRP Monitoring		
Evaluation Criteria	**Description**	**Objective/Goal**
Influent Monitoring	Review LWRP influent mercury data	Observe a decrease in mercury concentration. However, decreases may be difficult to see due to low levels.
Sludge Monitoring	Review LWRP sludge monitoring data	Observe a decrease in mercury concentration. Also, unlikely to be observed due to low levels.
Source Identification	Review mercury mass-balance to LWRP to evaluate if all major sources have been identified	Develop a Source Identification with a mass balance within 5% of observed LWRP loading.

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Overall Effectiveness- Dental Program		
Evaluation Criteria	**Description**	**Objective/Goal**
Number and Percentage of dental offices provided with outreach materials.	Compare total # of facilities provided with information to total # of facilities present	Provide mercury outreach information to 100% of dental offices. Goal achieved with issuance of pollution prevention permits and materials distributed to all dental facilities identified in service area.
Number and Percentage of dental offices conducting Audits.	Compare total number of offices conducting voluntary audits with total number of offices. Use survey card or phone follow up to estimate number completing audit.	Since the audits are voluntary, a preliminary goal will be for 10% of the facilities to conduct voluntary audits. During the 2003/2004 (42 facilities), 2004-2009 (48 facilities), 2009-2014 (55 facilities), and 2014-2019 (55 facilities) pollution prevention permit period, all dental facilities returned completed self-certifications as required. *No dental facility inspections were performed during 2021 due to Covid 19.*
Number and percentage of dental offices inspected.	Inspect a subset of the dental facilities each year to review mercury handling practices and distribute BMPs.	Inspect 20% of the dental facilities per year after inception of the outreach effort. During the 2003/2004 (42 facilities), 2004-2009 (48 facilities), 2009-2014 (55 facilities), and 2014-2019 (55 facilities) pollution prevention permit period, all dental facilities were inspected as required. *All Dental Facilities will be inspected once during the 2020-2025 permit cycle. Due to staffing issues and Covid, not dental inspections have occurred in 2020 and 2021.*
Number and percentage of dental offices implementing BMPs.	Review number of facilities implementing BMP from inspection data or other survey activities	Preliminary goal will be for 25% of the offices inspected in the first year to be implementing BMPs. In the 2009 and 2011, Source Control Section staff participated in the BACWA Dental Amalgam Program Member Survey. During both reporting periods, over 90% of the permitted dental facilities certify to have implemented most of the accepted best management practices regarding mercury. (Specific BACWA Dental Amalgam Program Member Survey results are discussed in the 2012 Pollution Prevention Report.)

Reduction in mercury discharge from dental offices.	Conduct sampling before & after outreach, self-audit, & inspection to identify any reduction in mercury discharge	Identify 10% reduction in mercury from representative office. *Due to normal monitoring variability/ possibility of persistence of legacy mercury discharges in sewer lateral "joints" or "sags" in the laterals from dental offices.* This has been determined to be an infeasible measurement tool.

Criteria Used to Measure Public Outreach Efforts

The data used to measure the effectiveness of our public outreach include (1) the number of events, presentations, and programs, (2) the number of program participants/booth visitors, (3) post-program evaluations filled out by participants, and (4) pre- and post-program student test results. During this reporting period, fewer in-person events were performed due to COVID-19. Once the Alameda County shelter-in-place order ends, it is anticipated that public outreach will return to normal levels.

Overall Effectiveness- General Outreach/Education

Evaluation Criteria	Evaluation Methods & Outreach Goals	2020 Progress towards Outreach Goals
Number of employee events attended.	Method: Track the number of general outreach events conducted as a measure of program activity Goal: Participate in 3-5 major events or festivals per year. Conduct School outreach as requested.	*Was unable to participated in community events open to City employees due to COVID-19.*
Number of employees at employee events.	Method: Measure or estimate the number of employees visiting booths or displays at events. Goal: Maximize the number of people attending event.	*Was unable to participated in community events open to City employees due to COVID-19.*
Number of community events attended.	Method: Track the number of general outreach events conducted as a measure of program activity. Goal: Participate in 3-5 major events or festivals per year. Conduct School outreach as requested.	*Participated in 7 community events (see Table 6.A.)*

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Number of residents at community events.	Method: Measure or estimate the number of employees visiting booths or displays at events. Goal: Maximize the number of people attending event.	*Interacted with 496 residents at community events. Additionally, had 9,400 YouTube views for one online event.*
Feedback surveys at employee and community events.	Method: Survey attendees at employee and community events where possible to get feedback on outreach materials, approach, and awareness. Goal: Provide surveys to approximately 10% of event attendees to assess outreach effectiveness.	*Surveys are periodically performed at selected events.*
Number of Special Use Event Permits commented on and approved.	Method: Track the number of Special Use Event Permits commented on and approved as a measure of program activity. Goal: Provide proper BMPS to all event holders	*Commented and approved Special Use Permits. Outreached to food vendors at events.*
Number of classroom presentations, Sewer Science Labs, and LWRP tours performed.	Method: Track the number of presentations and tours performed as a measure of program activity Goal: Provide curriculum and tours as requested (in accordance with staff availability)	*No in-class presentations occurred during this reporting period due to Covid-19.*
Evaluations from classroom presentations, Sewer Science Labs, and LWRP tours.	Method: Survey teachers and group leaders at classroom presentation and plant tours where possible to get feedback on outreach materials, approach, and awareness Goal: Provide surveys to approximately 10% of teachers and group leaders to assess outreach effectiveness.	*In 2020, feedback surveys for school programs and LWRP tours were transitioned from paper to online surveys. A link to the online survey will now be sent to 100% of booking teachers/organization leaders after their program.*

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Overall Effectiveness- Targeted Residential Programs		
Evaluation Criteria	**Description**	**Objective/Goal***
Number of mercury thermometers collected.	Track number of thermometers turned in by residents	Collect and dispose of up to 800 mercury thermometers. Results and evaluation discussed in 2002/2003 Annual Pollution Prevention Report. *This program was concluded in 2018.*
Mercury Thermometer Exchange Program Survey.	Survey of Residents participating in thermometer exchange	Determine how many participants were from our service area, how they found out about the program, why they participated, and were they previously aware of the mercury issue in the bay. A goal will be for 20% of the surveys distributed to be returned. Results and evaluation discussed in 2002/2003 Annual Pollution Prevention Report.
Pounds of pharmaceutical waste (including, controlled and non-controlled substances) collected at Livermore Drug Take-Back Event.	Track pounds of pharmaceutical waste collected at Livermore Drug Take-Back Event	Since inception of the Take Back Program, the City has collected a total of 10,308 lbs. See table in report for a detailed yearly result of program.

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Overall Effectiveness- Lawrence Livermore National Laboratory Programs		
Evaluation Criteria	**Description**	**Objective/Goal**
Outreach Presentations/Events at LLNL	Track number of outreach presentations and number of attendees (if active sources are identified warranting outreach). Survey attendees for feedback.	Provide outreach to all significant, active point-sources within LLNL identified during investigation.
Reductions in mercury loading from LLNL	Evaluate LLNL mercury concentration.	Since most of the LLNL mercury loading is likely due to historic rather than current discharges, large reductions are unlikely. A preliminary goal of 10% will be used. On August 7, 2008, Source Control Program staff received a LLNL report confirming their sanitary sewer rehabilitation project performed by Insituform©. The purpose of this project was to prevent the mobility of residual mercury and included major element re-lining during 1992-1994 and minor element re-lining during 2001-2003.
Mercury removed in plumbing/trap cleaning	Track total mercury removed from the sewer system if trap or sewer line cleaning is required.	Evaluate volume of mercury removed an estimate potential loading reduction from LLNL. On August 7, 2008, Source Control Program staff received a LLNL report, which included LLNL's 2007 retention tank data. This data comprised of 55 sample results above the analytical limit of sensitivity (LOS), and resulted in no detections above the local mercury limit of 0.01 mg/L. The total mass of mercury discharged from retention systems was 0.76 grams. In addition, the LLNL storm water monitoring calculations for mercury representing runoff resulted in no detections above the local mercury limit of 0.01 mg/L.

8. Discussion of Current Efforts and Progress

Mercury/Dental Amalgam: The City of Livermore Water Resources Division implements an effective Dental Mercury Reduction Program which was discussed in Section 4. Pollutants of Concern and Source Reduction Tasks. During this reporting period, the City revised its Dental Mercury Reduction Program to bringing it compliance with 40 CFR Part 441 prior to the end 2020; thus, requiring all dental facilities to install a compliant amalgam separator and resubmit self-certifications. The City will continue to implement and enforce its Dental Amalgam Program.

Tritium: There have been no additional efforts to address tritium discharges by LLNL during this reporting period; however, routine tritium monitoring continues to be performed.

Copper and Cyanide: The City of Livermore Water Resources Division implements an aggressive Source Control Program, which has limited the levels of these potential pollutants in the LWRP influent through enforcement of Federal and local discharge limits. The primary source of copper and cyanide continue to be addressed through the issuance of control mechanisms issued to commercial and industrial sources.

Copper: During this reporting period, there was one Notices of Violation issued to one industrial users (Commercial Printer) for exceeding the 1.00 mg/L total copper limit. Subsequent resampling confirmed a return to compliance status.

Cyanide: During this reporting period, there were no Notices of Violation issued to industrial users for exceeding the 0.04 mg/L total cyanide limit.

Source Control Section staff ensures that adequate controls or management practices are implemented by local businesses to protect the LWRP. During this reporting period, the concentrations of these pollutants in the LWRP influent were below levels of concern or below method detection limits.

FOG: The City of Livermore Water Resources Division implements an effective FOG Control Program which was discussed in Section 4. Pollutants of Concern and Source Reduction Tasks. Water Resources Division staff will continue to inspect FSEs while focusing on pollution prevention issues and verifying that FSEs are meeting FOG Control Program objectives.

Pharmaceuticals: The City of Livermore Water Resources Division will continue to promote the safe and proper disposal of drugs and report the total pounds of prescription drugs collected at Livermore Drug Take-Back Days.

PCBs: Source Control Section staff provided City of Livermore Engineering and Building Division staff with the BAPPG Demolition Contractor Brochure that focuses on the proper of disposal of PCB containing caulk and sealants from aged buildings in 2018. In 2019, The City Council of the City of Livermore adopted Resolution No. 2019-093 which was a resolution adopting a program for managing polychlorinated biphenyls in building materials during the demolition and authorizing the City Manager to develop and promulgate policies and requirements to enact the program. Source Control Section staff will continue to identify potential PCBs-containing equipment during Pretreatment and Stormwater inspections and continue to review sampling data from permitted industrial and commercial users.

9. Effectiveness Evaluation

Pollution Prevention activities were dedicated towards fulfilling requests for presentations, Sewer Science Labs and plant tours. The tables contained in Section 7. Pollutants of Concern Source Reduction Evaluation as well as the discussion below provides a basic summary of the effectiveness of the major tasks conducted to date:

Source Identification Efforts

LWRP Influent Loading - The review of historic influent mercury concentrations and loading was successful in identifying an average loading to be used in mass-balance calculations. Using the 1997-2001 data produced results within 5% of previous estimates; however, the current estimates are based on much better, site-specific data.

Domestic/Residential Sources - Our efforts to quantify the domestic mercury contribution were effective in determining a good estimate of about 66% of the influent mercury loading being attributed to residential sources. The calculations were based on a comprehensive domestic trunk line sampling conducted by Source Control staff in conjunction with the recalculation of LWRP local limits. The calculated loading seems to be consistent with the domestic contribution found by other agencies and will be useful in determining the relative contributions of other sources.

Lawrence Livermore National Laboratory - Our past efforts to quantify LLNL mercury loadings to the LWRP were successful, indicating that LLNL comprises about 14% of our influent loading based on the 1999 influent baseline data. This estimate was revised to 15% during the prior reporting period, based on improved domestic sampling and calculations using long-term LWRP influent data from 1997-2001. No additional efforts to quantify LLNL's mercury loadings were conducted during this reporting period.

Source Control Staff Training

During this reporting period, staff attended training sessions held at CWEA conferences in addition to training events sponsored by the Alameda Countywide Clean Water Program (ACCWP).

Regional Efforts
Our efforts to provide leadership and contributions to the BAPPG will continue.

10. Future Tasks and Schedule

The following table contains a status update to the list of the major tasks included in the prior year's report. Detailed task descriptions are included in Section 4. Pollutants of Concern and Source Reduction Tasks. Additional tasks may be undertaken as they are identified or needed. An update on the progress and any changes to the timeline will be discussed in future reports.

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Task	Target Completion Date
Mercury (and Silver):	
Help BAPPG/RWQCB Board Staff define “baseline” mercury program	Complete
Meet with LLNL Staff to review current/historical mercury use	Complete
Evaluate plumbing/trap cleaning opportunities at LLNL	Complete
Review the need to reduce the LLNL “internal” mercury discharge limit and identify current mercury discharge sources	Complete
Conduct targeted outreach to LLNL staff as necessary if current sources are identified	Ongoing
Identify and sample representative Dental Facilities	Complete
Perform Dental Facility site visits/inspections	Ongoing
Re-permit/permit Dental Facilities	Ongoing
Mail BAPPG outreach materials to Dental Facilities	Complete
Update the GIS Layer for Dental Facilities with and without amalgam separators	Ongoing
Review Valley Memorial Hospital sampling data/collect additional samples if necessary	Complete
Disseminate Alameda Countywide Clean Water Program’s *Mercury Lamp Best Management Practices* Hand-out to business during General Pretreatment and Stormwater Inspections	Ongoing
Follow-up with commercial and industrial violators through the Pretreatment Program	As Needed
Review mercury data for other commercial and industrial sources	Ongoing
Update the GIS layer for permitted facilities, including Photo Processors, Vehicle Wash Racks, General, Categorical and Significant Industrial Users	Ongoing
Disseminate BAPPG’s Demolition Contractor Brochure	Ongoing

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Task	Target Completion Date
Mercury (continued):	
Support SB 633 Mercury Products Ban	Complete
Provide City Thermometer Take-Back Program	Ongoing
Copper and Cyanide:	
Follow-up with commercial and industrial violators through the Pretreatment Program	Ongoing
Review copper and cyanide data for other commercial and industrial sources	Ongoing
Update the GIS layer for permitted facilities, including Photo Processors, Vehicle Wash Racks, General, Categorical and Significant Industrial Users	Ongoing
Present BAPPG's *Maintenance Tips for POOLS, SPAS, AND FOUNTAINS Fact Sheet* to the Tri-Valley Chapter of the Independent Pool and Spa Service Association (IPSSA)	Complete
Fats, Oils and Grease (FOG):	
Perform grease trap, Big Dipper and Trapzilla inspections once every three years at Food Service Establishments (FSEs) in FOG Program	Ongoing
Perform semi-annual grease interceptor inspections at Food Service Establishments (FSEs) in FOG Program	Ongoing
Update the GIS layer for Food Service Establishments	Ongoing
FOG Campaign for Water Resource Division's vehicles	Ongoing
Disseminate BAPPG's stickers and posters to turkey fryer retailers (other than OSH and Home Depot) regarding proper FOG disposal during the holiday seasons	Complete
Pharmaceuticals:	
Support SB 1014 Safe Medication Management	Complete
Disseminate City's *Safe Medicine Disposal* Hand-out to residents at Livermore Drug Take-Back Days	Ongoing

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Task	Target Completion Date
Pharmaceuticals (continued):	
Present City's *Safe Medicine Disposal* PowerPoint to senior citizens at Livermore Area Park and Recreation District (LARPD) community center events	Complete
Task	**Target Completion Date**
Polychlorinated Biphenyls (PCB's):	
Identify potential PCBs-containing equipment during Pretreatment and Stormwater Inspections	Ongoing
Follow-up with commercial and industrial violators through the Pretreatment Program	As needed
Review PCB data for other commercial and industrial sources	Ongoing
Participate on Alameda Countywide Clean Water Program's "PCB Reduction Strategy Workgroup" to help identify properties that possess the potential to have PCBs or legacy PCB contamination on site	Complete
Implement management of PCBs with Demolition Permits by June 30, 2019	Complete
Water Resources Division (WRD) Environmental Education Program:	
Revise/Mail *School Program Brochure* and courtesy letter to Schools	Complete
Develop/Disseminate evaluation forms for classroom presentations, plant tours and Sewer Science Labs, and pre and post-tests for Sewer Science Labs	Ongoing
Perform classroom presentations, plant tours and Sewer Science Labs	Ongoing
Develop *Pollution Prevention Teaching Tool* for classroom presentations and Sewer Science Labs	Complete
Develop *Where Does Our Water Go Poster* for classroom presentations and Sewer Science Labs	Complete
Develop/Maintain WRD Web Page (including mercury, copper, FOG, "flushable wipes", pharmaceutical and pesticide outreach)	Ongoing

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Task	Target Completion Date
Water Resources Division (WRD) Environmental Education Program (continued):	
Develop/Post WRD Water and Sewer Bill messages (including mercury, copper, FOG, “flushable wipes”, pharmaceutical, pesticide, triclosan and plastic microbead outreach)	Ongoing
Develop WRD Services Brochure	Complete
Update LWRP Process Signs	Complete
Develop LWRP Video	Complete
Disseminate *Think Before You Flush* Brochure regarding proper disposal of FOG, “flushable wipes”, pharmaceutical and household hazardous waste.	Ongoing
Disseminate employee and resident survey forms at outreach events	Ongoing
Disseminate other mercury, copper, FOG, “flushable wipes”, pharmaceutical and pesticide literature at outreach events	Ongoing
Perform Green Business Program’s Pollution Prevention Inspections for certification and re-certification of businesses	Ongoing