BACWA
BAY AREA
CLEAN WATER
AGENCIES

**Executive Board Meeting**
**AGENDA**
**Friday, April 15, 2022 9:00 AM - 12:30 PM (PDT)**

To attend the meeting via Zoom or submit a comment please request access.

| Agenda Item | | Time | Pages |
|---|---|---|---|
| **ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE** | | **9:00 AM** | |
| **PUBLIC COMMENT** | Guidelines | **9:05 AM** | |
| **CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER** | | | |
| **CONSENT CALENDAR** | | **9:10 AM** | |
| 1 Resolution to continue teleconferencing Executive Board meetings (AB361) | | | **3-4** |
| 2 March 18, 2022 BACWA Executive Board meeting minutes | | | **5-10** |
| 3 March 25, 2022 Special BACWA Executive Board meeting minutes | | | **11** |
| 4 February 2022 Treasurer's Report | | | **12-19** |
| **APPROVALS AND AUTHORIZATIONS** | | **9:15 AM** | |
| 5 Approval: FY23 Budget and Workplan | | | **20-36** |
| 6 Authorization: EDAR NBWA Request for Sponsorship | | | **37-39** |
| **POLICY/STRATEGIC** | | **9:20 AM** | |
| 7 Discussion: Presentation on SCCWRP POTW Microplastic Study | | | |
| 8 Discussion: BACWA Comments on SSS WDR | | | **40-85** |
| 9 Discussion: Draft agenda for 4/29 joint meeting with R2 | | | **86** |
| 10 Discussion: Debrief from kickoff BAAQMD workgroup meeting | | | **87-88** |
| **BREAK** | | **10:30 AM** | |
| 11 Discussion: Nutrients | | | |
| a. Technical Work | | | |
| i. March 29/30, 2022 Model Advisory Group meeting | | | **89-92** |
| b. Regulatory | | | |
| i. Reevaluation of baseline data | | | |
| ii. April 21 NST meeting agenda | | | |
| c. Fundraising | | | |
| i. Potential projects for WQIF Grant | | | |
| 12 Informational: Final PFAS Phase 2 SAP | | | **93-164** |
| 13 Informational: Debrief from April 5 PFAS presentation to SWB | SWB Meeting Agenda and Video | | **165-213** |
| **OPERATIONAL** | | **11:10 AM** | |
| 14 Discussion: 2022 Annual Meeting Program and logistics | | | **214** |
| 15 Informational: BACC Update | | | **215** |
| 16 Informational: Succession Planning - Previous BACWA Chair/Vice Chairs | | | **216-217** |
| **REPORTS** | | **12:20 PM** | |
| 17 Committee Reports | | | **218** |
| 18 Member highlights | | | |
| 19 Executive Director Report | | | **219-221** |
| 20 Board Calendar and Action Items | | | **222-223** |
| 21 Regulatory Program Manager Report | | | **224** |
| 22 Other BACWA Representative Reports | | | |
| a. RMP Technical Committee | Mary Lou Esparza, Yuyun Shang, Samantha Engelage | | |
| b. RMP Steering Committee | Karin North; Amanda Roa; Eric Dunlavey | | |
| c. Summit Partners | Lorien Fono; Amit Mutsuddy | | |
| d. ASC/SFEI | Lorien Fono; Eileen White | | |
| e. Nutrient Governance Steering Committee | Eric Dunlavey; Eileen White; Lori Schectel | | |
| e.i Nutrient Planning Subgroup | Eric Dunlavey | | |
| e.ii NMS Technical Workgroup | Eric Dunlavey | | |
| f. SWRCB Nutrient SAG | Lorien Fono | | |

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|---|---|---|---|
| g. NACWA Taskforce on Dental Amalgam | Tim Potter | | |
| h. BAIRWMP | Cheryl Munoz; Florence Wedington | | |
| i. NACWA Emerging Contaminants | Karin North; Melody LaBella | | |
| j. CASA State Legislative Committee | Lori Schectel | | |
| k. CASA Regulatory Workgroup | Lorien Fono; Mary Cousins | | |
| l. ReNUWIt | Jackie Zipkin; Karin North | | |
| m. ReNUWIt One Water | Jackie Zipkin, Eric Hansen | | |
| n. RMP Microplastics Liaison | Artem Dyachenko | | |
| o. Bay Area Regional Reliability Project | Eileen White | | |
| p. WateReuse Working Group | Cheryl Munoz | | |
| q. San Francisco Estuary Partnership | Eileen White; Lorien Fono | | |
| r. CPSC Policy Education Advisory Committee | Colleen Henry | | |
| s. California Ocean Protection Council | Lorien Fono | | |
| t. Countywide Water Reuse Master Plan | Karin North, Pedro Hernandez | | |
| u. CHARG - Coastal Hazards Adaptation Resiliency Group | Jackie Zipkin | | |
| v. California Water Quality Monitoring Council | Lorien Fono | | |

| | | |
|---|---|---|
| 26 **SUGGESTIONS FOR FUTURE AGENDA ITEMS** | **12:29 PM** | |

| | | |
|---|---|---|
| **NEXT MEETING** | | |
| **The next meeting of the Board is scheduled for June 17, 2022** | | |

| | | |
|---|---|---|
| **ADJOURNMENT** | **12:30 PM** | |

**BAY AREA CLEAN WATER AGENCIES**
**RESOLUTION NO. R-22-08**

**RESOLUTION AUTHORIZING REMOTE TELECONFERENCE MEETINGS PURSUANT TO AB 361**

WHEREAS, all Bay Area Clean Water Agencies (BACWA) meetings are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963), so that any member of the public may attend, participate, and watch BACWA's legislative bodies conduct their business; and

WHEREAS, on March 4, 2020, Governor Newsom declared a State of Emergency to make additional resources available, formalize emergency actions already underway across multiple state agencies and departments, and help the State prepare for an anticipated broader spread of the novel coronavirus disease 2019 ("COVID-19"); and

WHEREAS, On March 17, 2020, in response to the COVID-19 pandemic, Governor Newsom issued Executive Order N-29-20 suspending certain provisions of the Ralph M. Brown Act in order to allow local legislative bodies to conduct meetings telephonically or by other means; and

WHEREAS, as a result of Executive Order N-29-20, staff set up virtual meetings for all BACWA Executive Board meetings; and

WHEREAS, on June 11, 2021, Governor Newsom issued Executive Order N-08-21, which, effective September 30, 2021, repealed the provisions of Executive Order N29-20 that allowed local legislative bodies to conduct meetings telephonically or by other means; and

WHEREAS, on September 16, 2021, Governor Newsom signed AB 361 (2021), which allows for local legislative bodies and advisory bodies to continue to conduct meetings via teleconferencing under specified conditions and includes a requirement that the BACWA Executive Board make specified findings. AB 361 (2021) took effect immediately; and

WHEREAS, in order for legislative bodies to continue to conduct meetings via teleconferencing pursuant to AB 361 (2021), a proclaimed State of Emergency must exist; and

WHEREAS, AB 361 (2021) further requires that State or local officials have imposed or recommended measures to promote social distancing, or, requires that the legislative body determines that meeting in person would present imminent risks to the health and safety of attendees; and

WHEREAS, such conditions now exist in BACWA's jurisdiction, specifically, Governor Newsom has declared a State of Emergency due to COVID-19; and

WHEREAS, the Centers for Disease Control and Prevention ("CDC") continues to recommend physical distancing of at least 6 feet from others outside the household; and

WHEREAS, local county health jurisdictions continue to recommend physical and social distancing as a COVID-19 mitigation strategy and

WHEREAS, because of the prevalence of highly contagious variants of COVID-19, the BACWA Executive Board is concerned about the health and safety of all individuals who intend to attend BACWA Executive Board and Committee meetings; and

WHEREAS, the BACWA Executive Board desires to provide a way for Executive Boarders, staff, and members of the public to participate in meetings remotely, without having to attend meetings in person; and

WHEREAS, the BACWA Executive Board hereby finds that the presence of COVID-19 and the prevalence of cases due to the Omicron variant would present imminent risks to the health or safety of attendees, including the legislative bodies and staff, should BACWA's legislative bodies hold in person meetings; and

WHEREAS, BACWA shall ensure that its meetings comply with the provisions required by AB 361 (2021) for holding teleconferenced meetings.

**BAY AREA CLEAN WATER AGENCIES**
**RESOLUTION NO. R-22-08**

NOW, THEREFORE, BE IT RESOLVED that the Executive Board of the Bay Area Clean Water Agencies hereby declares as follows:

1. The above recitals are true and correct, and incorporated into this Resolution.
2. In compliance with AB 361 (2021), and in order to continue to conduct teleconference meetings without complying with the usual teleconference meeting requirements of the Brown Act, the BACWA Executive Board makes the following findings:
    a. The BACWA Executive Board has considered the circumstances of the State of Emergency; and
    b. The State of Emergency, as declared by the Governor, continues to directly impact the ability of the BACWA Executive Board and BACWA's legislative bodies, as well as staff and members of the public, from meeting safely in person; and
    c. The CDC continues to recommend physical distancing of at least six feet due to COVID-19 and as a result of the presence of highly contagious variants of COVID-19, meeting in person would present imminent risks to the health or safety of attendees, the legislative bodies and staff.
3. The BACWA Executive Board may continue to meet remotely in compliance with AB 361, in order to better ensure the health and safety of the public.
4. The BACWA Executive Board will revisit the need to conduct meetings remotely within thirty (30) days of the adoption of this resolution.

PASSED AND ADOPTED THIS 15th DAY OF APRIL, 2022.

Amit Mutsuddy
Chair of the Bay Area Clean Water Agencies Executive Board

ATTEST:

Lorien J. Fono
Executive Director, Bay Area Clean Water Agencies

# Executive Board Meeting Minutes

March 18, 2022

**ROLL CALL AND INTRODUCTIONS**

**Executive Board Representatives:** Amy Chastain (San Francisco Public Utilities Commission); Eileen White (East Bay Municipal Utility District); Jackie Zipkin (East Bay Dischargers Authority); Lori Schectel (Central Contra Costa Sanitary District); Amit Mutsuddy (City of San Jose).

**Other Attendees and Guests:**

| Name | Agency/Company |
|---|---|
| Aaron Winer | West County Wastewater District |
| Alan Shear | Tamalpais CSD |
| Amanda Roa | Delta Diablo |
| Don Gray | EBMUD |
| Dave Richardson | Woodard & Curran |
| Eric Dunlavey | City of San Jose |
| Jared Voskuhl | CASA |
| Jennifer Dyment | BACWA |
| Jimmy Mach | City of Oakland |
| Lorien Fono | BACWA |
| Mary Cousins | BACWA |
| Mary Lou Esparza | CCCSD |
| Meg Herston | FSSD |
| Melody Tovar | City of Sunnyvale |
| Michael Connor | Consultant |
| Sarah Deslauriers | Carollo Engineers |
| Samuel Feldman-Crough | EBMUD |
| Tom Hall | EOA |

**Amit started meeting at 9:01**

**ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE**

**PUBLIC COMMENT**

**CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER** BACWA Executive Director asked that Item 12 be taken when presenter arrives to meeting.

**CONSENT CALENDAR**

1 Resolution to continue teleconferencing Executive Board meetings (AB361)

2 February 18, 2022 BACWA Executive Board meeting minutes

3 January 2022 Treasurer's Report

**Consent Calendar Items 1 thru 3:** *A motion to approve was made by Lori Schectel (Central Contra Costa Sanitary District) and seconded by Amit Mutsuddy (City of San Jose). The motion was approved unanimously.*

**APPROVALS AND AUTHORIZATIONS**

4 Approval: FY 22 Contract with SGS AXYS for PFAS Analysis $98,220.

**Approval Item 4**: *A motion to approve was made by Jackie Zipkin (East Bay Dischargers Authority) and seconded by Amit Mutsuddy (City of San Jose). The motion was approved unanimously.*

5 Approval: Amendment to FY22 Carollo AIR Committee support contract, add'l $10K

**Approval Item 5**: *A motion to approve was made by Lori Schectel (Central Contra Costa Sanitary District) and seconded by Amy Chastain (SF Public Utilities Commission). The motion was approved unanimously.*

**POLICY/STRATEGIC**

**6 Discussion: Nutrients**

**a. Technical Work**

**i. March 11 NTW and subsequent meeting debrief** - BACWA Executive Director shared a summary of the concerns and the funding for core program and priority projects that were discussed at the meeting. BACWA's NTT met with the Science team on March 17 to discuss how elements of the assessment framework would be funded. General discussion followed.

**ii. BACWA support letters for NMS fundraising efforts** - BACWA Executive Director summarized NMS fundraising efforts. There are 6 recent proposals totaling $3.7 million; 3 proposals were supported with letters from BACWA, which were provided in the packet. General discussion followed. Item will be discussed at next Executive Board Meeting.

***Action Item*** *– BACWA ED to work with SFEP and other regional partners regarding the potential for collaboration on grant funding, and report back.*

**iii. Plain-language review of nutrient science program** - BACWA Executive Director summarized the review of the science program. The key areas are the introduction, key questions, and tools for planning the next steps. General discussion followed. Board members would like more of a focus on what we have learned.

***Action Item*** *– BACWA ED to work with SFEI to augment plain-language review to include graphics, simplified text, and a summary of what we have learned so far.*

**b. Regulatory**

**i. 2022 GAR Re-Submittal** - BACWA Executive Director shared that the data was corrected in the summary report. BACWA RPM shared link to updated GAR report.

**ii. Update on baseline evaluation** - BACWA Executive Director summarized the goal of baseline reevaluation. The goal is to establish a statistically defensible baseline that incorporates all the variability in the data from our chosen period of record.

***Action Item*** *– BACWA ED to send out doodle pole for NST next meeting and some background information.*

**c. Governance Structure**

**i. March 2, 2022 Planning Subcommittee meeting notes** - BACWA Executive Director shared that the meeting notes were in the packet.

**7 Discussion: Proposed agenda for BAAQMD workgroup meeting and attendees** - BACWA Executive Director and Sarah Deslauriers shared attendee ideas with group and discussed agenda topics.

***Action items*** *– BACWA ED will discuss agenda with Regional Water Board prior to meeting.*

***Action items*** *– BACWA ED will set up meeting to plan workshop engagement.*

**8 Discussion: SSS WDR update and response** - BACWA RPM shared the schedule, priority comments and comment letter logistics. Group discussed language of comments and proposals. There was general agreement that attorneys need to weigh in and advise on language. BACWA RPM will be revising language in technical comment letter and will also prepare a cover letter identifying resources needed to implement requirements. The due date is April 8th.

***Action items*** *– BACWA RPM will provide updated letter to BACWA community by March 25th.*

**BREAK 10:58-11:10am**

**9 Informational: WRAP Action 2.16 on Institutional Barriers to recycling** - BACWA Executive Director shared that the final report is out and there is a link to the document in the packet. The funds BACWA provided for this effort have not been spent, so the ED will work with the project team to determine if there are next steps that could be funded or if BACWA will be reimbursed.

**10 Informational: BAPPG Annual Report** - BACWA Executive Director shared that BAPPG's annual report is in the packet.

**11 Discussion: Draft Climate Change Basin Plan amendment** - BACWA RPM shared a link to the staff report. General discussion followed.

**OPERATIONAL**

**12 Discussion: Re-envisioning the O&M Infoshare Group** - Bryan Berdeen, City of Sunnyvale, shared ideas for growing and reengaging members of the O&M Infoshare group. General discussion and comments followed. BACWA ED and RPM will work with Bryan to brainstorm ideas for the group. Committee expenses could be funded out the miscellaneous committee support budget in FY23. BACWA RPM asked for leadership volunteers.

**13 Discussion: FY23 Draft Budget and workplan** - BACWA Executive Director shared summary of second draft of proposed FY23 Budget. BACWA ED noted two changes from first draft – staffing contracts and support of ACE issues. Group also discussed collaborative funding criteria and options.

***Action item** – BACWA ED will present FY23 Budget for approval at April 2022 Executive Board Meeting.*

**14 Discussion: 2022 Annual Meeting Program and logistics** - BACWA Executive Director reviewed the proposed Annual Meeting Program with the group. General discussion and feedback followed about topics, speakers and COVID protocols.

**15 Discussion: AB361 sunset and future of remote Executive board meetings** - BACWA Executive Director asked for perspectives from agencies on holding meetings in person or remote. Agencies described a variety of meeting arrangements. BACWA ED proposed to have April and June Executive Meetings remote. In June, determine steps to return to in person meetings.

**16 Informational: BACC Update** - BACWA AED shared that there were 11 bids and awards. Prices for chemicals went up in every concentration except one. BACC agencies will be invoiced next week.

***Action items:** BACWA AED to send out 2021-2022 price comparison spreadsheet to BACWA Executive Board.*

**17 Informational: Form 700 reminder** - BACWA AED shared that 72% of the 700 forms were complete per NetFile. Outstanding fillers will continue to get notices from NetFile and BACWA AED. Forms are due April 1, 2022.

**18 Discussion: Arleen Navarret award selection committee** - BACWA Executive Director will send the 2 nominations to the selection committee, and they will select the recipient. A new selection committee member was recruited to replace a member who needed to recuse themself. The recipient will be announced at the Annual Meeting in May.

***Action item:*** *BACWA ED to send nominations to selection committee members.*

**19 Informational: Kickoff of Bruce Wolfe memorial scholarship** - BACWA Executive Director encouraged agencies to continue advertising Bruce Wolfe memorial scholarship via social media.

**REPORTS**

**20 Committee Reports** - Amit shared that committee reports are in the packet.

**21 Member highlights** - Central San and EBMUD shared they have interactive facility tours on their websites.

**22 Executive Director Report** - BACWA Executive Director shared report is in the packet.

**23 Board Calendar and Action Items** - BACWA Executive Director shared there will be a microplastics presentation at the April meeting.

**24 Regulatory Program Manager Report** - BACWA RPM shared the report is in the packet.

25 Other BACWA Representative Reports

a. RMP Technical Committee Mary Lou Esparza, Yuyun Shang, Samantha Engelage

b. RMP Steering Committee Karin North; Amanda Roa; Eric Dunlavey

c. Summit Partners Lorien Fono; Amit Mutsuddy

d. ASC/SFEI Lorien Fono; Eileen White

e. Nutrient Governance Steering Committee Eric Dunlavey; Eileen White; Lori Schectel

e.i Nutrient Planning Subgroup Eric Dunlavey

e.ii NMS Technical Workgroup Eric Dunlavey

f. SWRCB Nutrient SAG Lorien Fono

g. NACWA Taskforce on Dental Amalgam Tim Potter

h. BAIRWMP Cheryl Munoz; Florence Wedington

i. NACWA Emerging Contaminants Karin North; Melody LaBella

j. CASA State Legislative Committee Lori Schectel

k. CASA Regulatory Workgroup Lorien Fono; Mary Cousins

l. ReNUWIt Jackie Zipkin; Karin North

m. ReNUWIt One Water Jackie Zipkin, Eric Hansen

n. RMP Microplastics Liaison Artem Dyachenko

o. Bay Area Regional Reliability Project Eileen White

p. WateReuse Working Group Cheryl Munoz

q. San Francisco Estuary Partnership Eileen White; Lorien Fono

r. CPSC Policy Education Advisory Committee Colleen Henry

s. California Ocean Protection Council Lorien Fono

t. Countywide Water Reuse Master Plan Karin North, Pedro Hernandez

u. CHARG - Coastal Hazards Adaptation Resiliency Group Jackie Zipkin

v. California Water Quality Monitoring Council Lorien Fono

26 **SUGGESTIONS FOR FUTURE AGENDA ITEMS**

**NEXT MEETING** **The next meeting of the Board is scheduled for April 15, 2022**

**ADJOURNMENT** **12:45**

# Special Executive Board Meeting
# March 25, 2022 Meeting Summary

**ATTENDEES:**
**Executive Board Representatives:** Lori Schectel (Central Contra Costa Sanitary District); Amit Mutsuddy (San José); Jacqueline Zipkin (East Bay Dischargers Authority).

**Other Attendees:**

| Name | Representing |
|---|---|
| Amanda Roa | Delta Diablo |
| Connie Li | Union Sanitary District |
| Courtney Mizutani | Consultant |
| Curtis Bosick | Union Sanitary District |
| Diego Martinez Garcia | City of Palo Alto |
| Jason Nettleton | San José |
| Jose Guerrero | San José |
| Lorien Fono | BACWA |
| Mary Cousins | BACWA |
| Michael Sutter | City of San Mateo |
| Nohemy Revilla | SFPUC |
| Sarah Deslauriers | Carollo |
| Tim Grillo | Union Sanitary District |

Amit Mutsuddy called the meeting to order at 11:32 am. Roll Call was led by Sarah Deslauriers.

**PUBLIC COMMENT** **None**

**PREPARATION FOR MARCH 30TH MEETING WITH BAAQMD**
Attendees discussed BACWA's objectives for an upcoming March 30th meeting with the Bay Area Air Quality Management District (BAAQMD). The BAAQMD Board of Directors established a working group with wastewater agencies in the resolution adopting Regulation 2, Rule 5. Meeting attendees worked on development of an agenda and slides for the first meeting of this working group. Regional Water Board staff will also attend the March 30th meeting and share their perspective on working with wastewater permittees. At the March 30th meeting, the group plans to highlight areas where collaboration is needed, including cross-media issues and Regulation 2 implementation; share some recent permitting experiences (without going into too much detail about specific cases); and discuss logistics for future meetings of the workgroup. A list of meeting participants was also finalized (Lori, Amit, Lorien, Jason, Sarah, and Courtney, and possibly Chris Dembiczak)

**ADJOURNMENT** 12:35 PM

Bay Area Clean Water Agencies
A Joint Powers Public Agency
Leading the Way to Protect our Bay

March 21, 2022

MEMO TO**:** Bay Area Clean Water Agencies Executive Board

MEMO FROM: Samuel Feldman-Crough, Treasurer, East Bay Municipal Utility District

SUBJECT: Eighth Month FY 2022 Treasurer's Report

As required by section eight of the Joint Powers Agreement establishing the Bay Area Clean Water Agencies (BACWA) and California Government Code Sections 6500 et seq., attached is the BACWA Treasurer's Report for the period covering **July 1, 2021 through February 28, 2022** (Eight months of Fiscal Year 2022). This report covers expenditures, cash receipts, and cash transfers for the following BACWA funds:

- Bay Area Clean Water Agencies (BACWA),
- BACWA Legal Reserve Fund (Legal Rsrv),
- Water Quality Attainment Strategy (WQA CBC),
- Bay Area Biosolids Coalition (BABC),
- Bay Area Chemical Consortium (BACC),
- Water/Wastewater Operator Training (WOT),

## Houck, Matt

**From:** Feldman, Samuel
**Sent:** Monday, March 21, 2022 5:59 PM
**To:** Houck, Matt
**Subject:** RE: February 2022 Treasurer's Report

Approved. Thank you!

**Sam Feldman** (he/him/his)
Manager of Budget (Temporary)
office: (510) 287-0441
mobile: (510) 882-6860

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**From:** Houck, Matt <matt.houck@ebmud.com>
**Sent:** Monday, March 21, 2022 10:54 AM
**To:** Feldman, Samuel <samuel.feldman@ebmud.com>
**Subject:** February 2022 Treasurer's Report

Hi Samuel,

Please approve BACWA – February 2022 Treasurer's Report for distribution.

Thanks,

**Matt Houck**
Accountant II
East Bay Municipal Utility District
375 11TH St, MS 402, Oakland, CA 94607
P 510-287-0238

**Fund Balances**

In FY22 BACWA has three operating funds (BACWA, Legal, and CBC) and three pass-through funds for which BACWA provides only contract administration services (WOT, BABC & BACC). As of October 31st, 2021, revenues are recognized when billed, not when payments are received.

BACWA Fund: This fund provides the resources for BACWA staff, its committees, and other administrative needs. The ending fund balance on February 28, 2022, was $695,758 which is significantly higher than the target reserve of $201,612 which is intended to cover 3 months of normal operating expenses based on the BACWA FY22 budget. $327,224 of the ending fund balance is shown on the BACWA Fund & Investments Balance Report February 31, 2022, as encumbered to meet ongoing operating line-item expenses for BAPPG Committee Support, Legal services, IT services, Board meeting expenses, accounting services and BACWA staff support. This leaves actual unencumbered reserves of $166,922 (i.e., actual fund balance of $368,534 less target reserves) as February 28, 2022.

CBC Fund: This fund provides the resources for completing special investigations as well as meeting regulatory requirements. The ending fund balance on February 28, 2022, was $2,262,894 which is higher than the target reserve of $1,000,000. $550,194 of the ending fund balance is encumbered to meet line-item expenses for completion of the Group Annual Report contract, completion of the NBS Study, Recycled Water Evaluation, and the PFAS Regional Study. This leaves an actual unencumbered reserve balance of $712,700 (i.e., actual fund balance of $1,712,700 less target reserves) as of February 28, 2022. As directed by the BACWA Executive Board, the CBC fund has diminished over time due to BACWA's ongoing funding of the NMS program to comply with the Nutrient Watershed Permit.

Legal Fund: This fund provides for needed legal services. The ending balance was $300,000 which is at the target reserve of $300,000.

**Budget to Actual**

The BACWA Annual Budget includes all expected revenues as well as budgeted expenses. Transfers are made from the BACWA Fund and/or the CBC Fund to balance the Annual Budget if expenses exceed revenues and vice versa. It is therefore important to achieve the anticipated revenues and not exceed the budgeted expenses on an annual basis to maintain the BACWA and CBC Fund balances at the levels projected in the 5 Year Plan.

Revenues as of February 28, 2022 (66% of the FY) are at 98%

Expenses as of February 28, 2022 (66% of the FY) are at 69%.

FY 2022
BACWA BUDGET to ACTUAL

| BACWA FY22 BUDGET | Line Item Description | FY 2022 Budget | Projected Revenue as of Feb2022 Changes from budget in blue | Actual Feb2022 | Actual % of Budget Feb2022 | Variance | NOTES |
|---|---|---|---|---|---|---|---|
| REVENUES & FUNDING | | | | | | | |
| Dues | Principals' Contributions | $516,909 | $516,909 | $516,910 | 100% | $1 | FY22: no increase. 5 @ $103,382 |
| | Associate & Affiliate Contributions | $187,793 | $187,793 | $183,175 | 98% | -$4,618 | FY22: no increase. 13 Assoc: $8,364; 45 Affiliate: $1,675. |
| Fees | Clean Bay Collaborative | $675,000 | $675,000 | $675,000 | 100% | $0 | Prin: $450,000; Assoc/Affil: $225,000 |
| | Nutrient Surcharge | $1,700,000 | $1,700,000 | $1,699,999 | 100% | -$1 | See Nutrient Surcharge Spreadsheet |
| | Voluntary Nutrient Contributions | $0 | $0 | $0 | 0% | $0 | |
| Other Receipts | AIR Non-Member | $7,075 | $7,075 | $7,074 | 100% | -$1 | no increase (Santa Rosa) |
| | BAPPG Non-Members | $3,954 | $3,954 | $3,954 | 100% | $0 | no increase (Sta Rosa, Sac Reg'l, Vacaville) $1,292/each |
| | Other | $0 | $0 | $3,601 | | $3,601 | BAWSCA membership and Scottish Rite Refund |
| Fund Transfer | Special Program Admin Fees (WOT) | $5,202 | $5,202 | $2,601 | 50% | -$2,601 | FY22: no increase |
| | Special Program Admin Fees (BACC) | $27,200 | $27,200 | $0 | 0% | -$27,200 | 400 hours of AED support $68 / hr |
| | Special Program Admin Fees (BABC) | $6,000 | $6,000 | $2,051 | 34% | -$3,949 | ED, AED and RPM support |
| Interest Income | LAIF | $20,000 | $10,000 | $4,528 | 23% | -$15,472 | BACWA, Legal, & CBC Funds invested in LAIF, LAIF yields lower than anticipated |
| | Higher Yield Investments | | | | | | |
| | **Total Revenue** | **$3,149,133** | **$3,139,133** | **$3,098,893** | **98.40%** | **-$50,240** | |

| BACWA FY22 BUDGET | Line Item Description | FY 2022 Budget | Projected Expense as of Feb2022 Changes from budget in blue | Actual Feb2022 | Actual % of Budget Feb2022 | Variance | NOTES |
|---|---|---|---|---|---|---|---|
| EXPENSES | | | | | | | |
| Labor | | | | | | | |
| | Executive Director | $190,000 | $190,000 | $110,833 | 58% | -$79,167 | No change from FY20/FY21 budget |
| | Assistant Executive Director | $108,800 | $108,800 | $43,928 | 40% | -$64,872 | 2.0% CPI (SF Bay Metro Area Dec 2020); $68/hour; Reflects 1600 hours (incl. 400 hours for BACC) |
| | Regulatory Program Manager | $127,400 | $127,400 | $57,590 | 45% | -$69,810 | $98/hour, Reflects 1300 hours |
| | **Total** | **$426,200** | **$426,200** | **$212,351** | **50%** | **-$213,849** | |
| Administration | | | | | | | |
| | EBMUD Financial Services | $42,448 | $42,448 | $10,097 | 24% | -$32,351 | No change from FY20/21 budget |
| | Auditing Services | $5,345 | $5,345 | $0 | 0% | -$5,345 | Finanical Auditors through EBMUD; per auditor rate schedule |
| | Administrative Expenses | $7,959 | $7,959 | $24 | 0% | -$7,935 | No change from FY20/21 budget |
| | Insurance | $5,071 | $7,072 | $7,072 | 139% | $2,001 | 2% increase over FY21 actual, reflects actual cost |
| | **Total** | **$60,823** | **$62,824** | **$17,193** | **28%** | **-$43,630** | |
| Meetings | | | | | | | |
| | EB Meetings | $2,653 | $2,653 | $335 | 13% | -$2,319 | No change from FY20/21 budget |
| | Annual Meeting | $14,369 | $14,369 | $0 | 0% | -$14,369 | No change from FY20/21 budget |
| | Pardee | $6,537 | $648 | $648 | 10% | -$5,889 | No change from FY20/21 budget |
| | Misc. Meetings | $5,306 | $5,306 | $605 | 11% | -$4,701 | No change from FY20/21 budget |
| | **Total** | **$28,865** | **$22,976** | **$1,588** | **6%** | **-$27,277** | |
| Communication | | | | | | | |
| | Website Hosting | $700 | $700 | $0 | 0% | -$700 | Website hosting $600, Go Daddy domain registration $100 |
| | File Storage | $765 | $765 | $720 | 94% | -$45 | No change from FY20/21 budget, box.net |
| | Website Development/Maintenance | $1,530 | $1,530 | $770 | 50% | -$760 | No change from FY20/21 budget |
| | IT Support | $2,652 | $2,652 | $0 | 0% | -$2,652 | No change from FY20/21 budget |
| | Other Commun | $1,785 | $1,785 | $768 | 43% | -$1,017 | No change from FY20/21 budget; MS Exchange, Survey Monkey, PollEv, Zoom, Netfile |
| | **Total** | **$7,432** | **$7,432** | **$2,258** | **30%** | **-$5,174** | |
| Legal | | | | | | | |
| | Regulatory Support | $2,815 | $2,815 | $0 | 0% | -$2,815 | 2% increase, Downey Brand LLP |

**FY 2022**
**BACWA BUDGET to ACTUAL**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***EXPENSES*** | | | | | | | |
| | Executive Board Support | $2,264 | $2,264 | $120 | 5% | -$2,144 | 2% increase, Day Carter & Murphy LLP |
| | **Total** | **$5,079** | **$5,079** | **$120** | **2%** | **-$4,959** | |
| **Committees** | | | | | | | |
| | AIR | $76,000 | $76,000 | $50,989 | 67% | -$25,011 | $75k consulting support, $1k misc expenses. Carollo Engineers |
| | BAPPG | $130,000 | $130,000 | $53,287 | 41% | -$76,713 | Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000 |
| | Biosolids Committee | $0 | $0 | $0 | | $0 | |
| | Collections System | $1,000 | $0 | $0 | 0% | -$1,000 | |
| | InfoShare Groups | $1,750 | $0 | $0 | 0% | -$1,750 | Funds for 2 workgroups ($750 for Asset Mgmt - new in FY21; $1,000 for O&M) |
| | Laboratory Committee | $1,000 | $1,000 | $1,000 | 100% | $0 | |
| | Permits Committee | $1,300 | $0 | $20 | 2% | -$1,280 | All meetings moved to include lunch hour for commuting purposes |
| | Pretreatment | $1,000 | $0 | $0 | 0% | -$1,000 | |
| | Recycled Water Committee | $1,000 | $0 | $0 | 0% | -$1,000 | |
| | Misc Committee Support | $45,000 | $23,600 | $1,324 | 3% | -$43,676 | Lab Committee TNI Training; Assistance for SSS WDR Comments; Enhanced ACE support by AIR |
| | Manager's Roundtable | $1,000 | $0 | $0 | 0% | -$1,000 | |
| | **Total** | **$259,050** | **$230,600** | **$106,620** | **41%** | **-$152,431** | |
| **Collaboratives** | | | | | | | |
| | **Collaboratives** | | | | | | |
| | State of the Estuary (SFEP-biennial) | $0 | $0 | $0 | 0% | $0 | Biennial in Odd Fiscal Years. (Paid bienniely in odd years for even year conference) |
| | Arleen Navarret Award | $2,500 | $2,500 | $0 | 0% | -$2,500 | Biennial in Even Fiscal Years. Award amount increased in FY20 |
| | BayCAN | $5,000 | $5,000 | $0 | 0% | -$5,000 | New in FY22 |
| | Stanford ERC (ReNUWIt) | $10,000 | $0 | $0 | 0% | -$10,000 | Renuwit is coming to an end, no invoice this year |
| | Misc | $1,500 | $5,000 | $5,000 | 333% | $3,500 | NBWA, Support for One Water |
| | **Total** | **$19,000** | **$12,500** | **$5,000** | **26%** | **-$14,000** | |
| **Other** | | | | | | | |
| | **Unbudgeted Items** | | | | | | |
| | Other | $0 | $0 | $0 | 0% | $0 | |
| | | **$0** | | **$0** | **0%** | **$0** | |
| **Tech Support** | | | | | | | |
| | **Technical Support** | | | | | | |
| | Nutrients | | | | | | |
| | Watershed | $2,600,000 | $2,200,000 | $2,200,000 | 85% | -$400,000 | Advance funding for 2nd Watershed Permit Science Studies. No advance funding was sent this fiscal year. |
| | NMS Voluntary Contributions | $0 | $0 | $0 | 0% | $0 | |
| | Additional work under permit | $100,000 | $100,000 | $0 | 0% | -$100,000 | Includes HDR PO for $225k spread out over FY20-24. |
| | Regional Study on Nature based systems | $248,811 | $248,811 | $35,119 | 14% | -$213,692 | SFEI PO for $500K, expires 6/30/2022 |
| | Regional Recycling Evaluation | $63,525 | $63,525 | $0 | 0% | -$63,525 | HDR PO for $154K FY20-24 |
| | Nutrient Workshop(s) | $0 | $0 | $0 | 0% | $0 | Pilot Studies/Plant Review/Innovative Technologies |
| | NMS Reviewer | $50,000 | $50,000 | $9,000 | 18% | -$41,000 | |
| | General Tech Support | $100,000 | $0 | $0 | 0% | -$100,000 | AB617 emission factors, nutrient technical review, other nutrient support. No anticipated technical support needs. |
| | CEC Investigations | $140,000 | $140,000 | $43,330 | 31% | -$96,670 | PFAS Study Phase II |
| | Risk Reduction | $7,500 | $12,500 | $0 | 0% | -$7,500 | APA FSS completed $12,500 contract in FY20, CIEA will complete $12,500 contract in FY22 |
| | **Total** | **$3,309,836** | **$2,814,836** | **$2,287,449** | **69%** | **-$1,022,387** | |
| | **TOTAL EXPENSES** | **$4,116,285** | **$3,582,447** | **$2,632,578** | **63.96%** | **-$1,483,707** | |
| | **PROJECTED EXPENSE DEVIATION FROM BUDGET** | | **-$533,838** | | | | |
| | **NET INCOME BEFORE TRANSFERS** | **-$967,152** | **-$443,314** | | | | |
| | **TRANSFERS FROM RESERVES** | **$967,152** | **$443,314** | | | | aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge |
| | **NET INCOME AFTER TRANSFERS** | **$0** | **$0** | | | | |
| | **TOTAL OPERATING BUDGET** | **$806,449** | | | | | |
| | **OPERATING RESERVE** | **$201,612** | | | | | |

# BACWA Fund Report as of February 28, 2022

## BACWA FUND BALANCES - DATA PROVIDED BY ACCOUNTING DEPT.

| DEPTID | DESCRIPTION | FISCAL YEAR BEGINNING FUND BALANCE | TOTAL BILLED REVENUE TO-DATE | TOTAL DISBURSEMENTS TO-DATE | MONTH-ENDING FUND BALANCE | OUTSTANDING ENCUMBRANCES | MONTH-END UNOBLIGATED FUND BALANCE |
|---|---|---|---|---|---|---|---|
| 600 | BACWA | 1,320,542 | 720,707 | 1,345,491 | 695,758 | 327,224 | 368,534 |
| 604 | LEGAL RSRV | 300,000 | - | - | 300,000 | - | 300,000 |
| 605 | CBC | 1,172,157 | 3,378,187 | 2,287,450 | 2,262,894 | 550,194 | 1,712,700 |
| | ***SUBTOTAL 1*** | *2,792,699* | *4,098,894* | *3,632,941* | *3,258,652* | *877,418* | *2,381,234* |
| 602 | BABC | *112,737* | 85,800 | 78,249 | 120,288 | *43,802* | 76,486 |
| 606 | BACC | *29,091* | - | *58,773* | (29,682) | *10,370* | (40,052) |
| 607 | BACC LEGAL RSRV | - | *30,000* | - | 30,000 | - | 30,000 |
| 610 | WOT | 275,143 | - | 3,188 | 271,955 | - | 271,955 |
| | ***SUBTOTAL 2*** | *416,971* | *115,800* | *140,210* | *392,561* | *54,172* | *338,389* |
| | **GRAND TOTAL** | **3,209,670** | **4,214,694** | **3,773,151** | **3,651,213** | **931,590** | **2,719,623** |

Top Chart: Reflects CASH on the Books — Includes Encumbrances
Bottom Chart: Reflects CASH in the Bank — Includes Payables (bills received but not paid)
Allocations: Priority for non-liquid investments

*Begginning fund balance adjusted October 2021 due to change in reported accounting basis.

## BACWA INVESTMENTS BALANCES - DATA PROVIDED BY TREASURY DEPT.

| DEPTID | DESCRIPTION | FISCAL YEAR BEGINNING FUND BALANCE | TOTAL BILLED REVENUE TO-DATE | TOTAL DISBURSEMENTS TO-DATE | MONTH-ENDING FUND BALANCE | RECONCILIATION TO FINANCIAL STATEMENTS A/R | RECONCILIATION TO FINANCIAL STATEMENTS A/P | MONTH-END RECONCILED FUND BALANCE | UNINVESTED CASH BALANCES | LAIF INVESTMENTS AMOUNTS | LAIF INVESTMENTS PERCENTAGE | ALTERNATIVE INVESTMENTS AMOUNTS | ALTERNATIVE INVESTMENTS IDENTIFIERS | ALTERNATIVE INVESTMENT INSTRUCTIONS AND NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 800 | BACWA | 1,320,542 | 720,707 | 1,345,491 | 695,758 | (14,975) | 43,615 | 724,398 | 724,398 | - | 0% | - | | priority # 3 for allocation |
| 804 | LEGAL RSRV | 300,000 | - | - | 300,000 | - | - | 300,000 | - | 300,000 | 13% | - | | priority # 1 for allocation |
| 805 | CBC | 1,172,157 | 3,378,187 | 2,287,450 | 2,262,894 | (63,292) | - | 2,199,602 | 237,002 | 1,962,600 | 87% | - | | priority # 2 for allocation |
| | ***SUBTOTAL 1*** | 2,792,699 | 4,098,894 | 3,632,941 | 3,258,652 | (78,267) | 43,615 | 3,224,000 | 961,400 | 2,262,600 | 100% | - | | |
| | | | | | | | | | | | | | | |
| 802 | BABC | 112,737 | 85,800 | 78,249 | 120,288 | (3,250) | - | 117,038 | 117,038 | - | 0% | - | | pass-through funds, no allocation |
| 806 | BACC | 29,091 | - | 58,773 | (29,682) | - | - | (29,682) | (29,682) | - | 0% | - | | |
| 807 | BACC LEGAL RSRV | - | 30,000 | - | 30,000 | - | - | 30,000 | 30,000 | - | 0% | - | | |
| 810 | WOT | 275,143 | - | 3,188 | 271,955 | - | - | 271,955 | 271,955 | - | 0% | - | | pass-through funds, no allocation |
| | ***SUBTOTAL 2*** | 416,971 | 115,800 | 140,210 | 392,561 | (3,250) | - | 389,311 | 389,311 | - | 0% | - | | |
| | **GRAND TOTAL** | **3,209,670** | **4,214,694** | **3,773,151** | **3,651,213** | **(81,517)** | **43,615** | **3,613,311** | **1,350,711** | **2,262,600** | **-** | | | |
| | | | | | | - | - | - | - | | | | | |

To be used to cover Reconciliation to Financial Statements ($0)

**Reconciliation to Trial Balance**

| | | | | | |
|---|---|---|---|---|---|
| Per Report above: | | | | | |
| General | 4,098,894 | STB | 14930 | 2,262,600 | |
| WOT, BABC, & BACC | 115,800 | STB | 15050 | 1,350,711 | |
| | | | | **3,613,311** | - |
| PROP | - | STB | 16300 | 81,517 | |
| **subtotal** | **4,214,694** | STB | 21350 | (43,615) | |
| | | | | **3,651,213** | - |

Trial Balance Revenue Accounts

| | | |
|---|---|---|
| 40100 | Interest | (4,528) |
| 40101 | Mem Contrib | (1,277,710) |
| 40102 | Transfer | (1,034,652) |
| 40103 | Assoc Contrib | (183,175) |
| 40104 | Other | (1,714,629) |
| 47310 | State Grant | - |
| 47320 | Grant Retention | - |
| **subtotal** | | **(4,214,694)** |
| **Difference** | | **-** |

# BACWA Revenue Report as of February 28, 2022

| Cost Center Code | Cost Center Description | Program Segment Description | Program Segment Value | Amended Budget | Current Period | FY22 - Year to Date | Unobligated |
|---|---|---|---|---|---|---|---|
| 600 | Bay Area Clean Water Agencies | BABC - AED and RPM Support | 6200 | (6,000.00) | - | (2,051.30) | 3,948.70 |
| | | BACC - AED Support | 6199 | (27,200.00) | - | - | 27,200.00 |
| | | BDO Affil/CS/Assoc Dues | 6104 | - | - | (38,087.00) | (38,087.00) |
| | | BDO Affiliate/Associate Dues | 6103 | - | - | (39,295.50) | (39,295.50) |
| | | BDO Assoc.&Affiliate Contr | 6102 | (187,793.00) | - | (105,792.36) | 82,000.64 |
| | | BDO Fund Transfers | 6141 | (5,202.00) | - | (2,601.00) | 2,601.00 |
| | | BDO Member Contributions | 6101 | (516,909.00) | - | (516,910.00) | (1.00) |
| | | BDO Non-Member Contr AIR | 6136 | (7,075.00) | - | (7,074.72) | 0.28 |
| | | BDO Non-Member Contr BAPPG | 6135 | (3,954.00) | - | (3,953.52) | 0.48 |
| | | BDO Other Receipts | 6105 | - | - | (1,000.00) | (1,000.00) |
| | | BDO Other Receipts (Misc) | 6140 | - | - | (2,601.00) | (2,601.00) |
| | | BDO- Interest Income from LAIF | 6142 | (20,000.00) | - | (1,340.80) | 18,659.20 |
| | | BDO-Alternative Investment Inc | 6143 | - | - | - | - |
| **600 Total** | | | | **(774,133.00)** | **-** | **(720,707.20)** | **53,425.80** |
| 602 | Bay Area Biosolids Coalition | BDO Fund Transfers | 6141 | | - | - | - |
| | | BDO Member Contributions | 6101 | | - | (85,800.00) | (85,800.00) |
| **602 Total** | | | | **-** | **-** | **(85,800.00)** | **(85,800.00)** |
| 605 | Clean Bay Collaborative | BDO Fund Transfers | 6141 | - | - | (1,000,000.00) | (1,000,000.00) |
| | | BDO Member Contributions | 6101 | (675,000.00) | - | (675,000.00) | - |
| | | BDO Other Receipts | 6105 | (1,700,000.00) | - | (1,699,999.00) | 1.00 |
| | | BDO- Interest Income from LAIF | 6142 | - | - | (3,187.57) | (3,187.57) |
| **605 Total** | | | | **(2,375,000.00)** | **-** | **(3,378,186.57)** | **(1,003,186.57)** |
| 606 | Bay Area Chemical Consortium | BDO Member Contributions | 6101 | - | - | - | - |
| **606 Total** | | | | **-** | **-** | **-** | **-** |
| 607 | BACC Legal RSRV | BDO Fund Transfers | 6141 | - | - | (30,000.00) | (30,000.00) |
| **607 Total** | | | | **-** | **-** | **(30,000.00)** | **(30,000.00)** |
| **Grand Total** | | | | **(3,149,133.00)** | **-** | **(4,214,693.77)** | **(1,065,560.77)** |

# BACWA Treasurer's Report Expenses and Encumbrances

## Period Covering July 1, 2021 through February 28, 2022

| Cost Center Code | Program Segment Description | Program Segment Value | Amended Budget | FY22 - Obligated Year to Date | Unobligated |
|---|---|---|---|---|---|
| 600 | AIR-Air Issues&Regulation Grp | 6153 | 76,000.00 | 75,000.00 | 1,000.00 |
| | AS-Assistant Executive Directo | 6175 | 108,800.00 | 108,800.00 | - |
| | AS-Audit Services | 6180 | 5,345.00 | 5,345.00 | - |
| | AS-BACWA Admin Expense | 6173 | 7,959.00 | 24.24 | 7,934.76 |
| | AS-EBMUD Financial Services | 6176 | 42,448.00 | 42,448.00 | - |
| | AS-Executive Director | 6174 | 190,000.00 | 190,000.00 | - |
| | AS-Insurance | 6177 | 5,071.00 | 7,072.34 | (2,001.34) |
| | AS-Regulatory Program Manager | 6179 | 127,400.00 | 114,863.50 | 12,536.50 |
| | Administrative Support | 6178 | - | 1,000,000.00 | (1,000,000.00) |
| | BC-BAPPG | 6152 | 130,000.00 | 107,885.60 | 22,114.40 |
| | BC-InfoShare Groups | 6148 | 1,750.00 | - | 1,750.00 |
| | BC-Laboratory Committee | 6149 | 1,000.00 | 1,000.00 | - |
| | BC-Manager's Roundtable | 6154 | 1,000.00 | - | 1,000.00 |
| | BC-Miscellaneous Committee Sup | 6150 | 45,000.00 | 3,680.00 | 41,320.00 |
| | BC-Permit Committee | 6145 | 1,300.00 | 20.00 | 1,280.00 |
| | BC-Pretreatment Committee | 6151 | 1,000.00 | - | 1,000.00 |
| | BC-Water Recycling Committee | 6146 | 1,000.00 | - | 1,000.00 |
| | CAR-BACWA File Storage | 6165 | 765.00 | 720.00 | 45.00 |
| | CAR-BACWA IT Software | 6167 | 1,785.00 | 767.79 | 1,017.21 |
| | CAR-BACWA IT Support | 6166 | 2,652.00 | 2,652.00 | - |
| | CAR-BACWA Website Dev/Maint | 6163 | 1,530.00 | 770.00 | 760.00 |
| | CAR-BACWA Website Hosting | 6164 | 700.00 | - | 700.00 |
| | CAS-Arleen Navaret Award | 6160 | 2,500.00 | - | 2,500.00 |
| | CAS-Misc Collaborative Sup | 6162 | 1,500.00 | 5,000.00 | (3,500.00) |
| | CAS-Stanford ERC | 6159 | 10,000.00 | - | 10,000.00 |
| | GBS-Meeting Support-Annual | 6170 | 14,369.00 | - | 14,369.00 |
| | GBS-Meeting Support-Exec Bd | 6169 | 2,653.00 | 334.50 | 2,318.50 |
| | GBS-Meeting Support-Misc | 6172 | 5,306.00 | 605.18 | 4,700.82 |
| | GBS-Meeting Support-Pardee | 6171 | 6,367.00 | 648.12 | 5,718.88 |
| | LS-Executive Board Support | 6156 | 2,264.00 | 2,264.00 | - |
| | LS-Regulatory Support | 6155 | 2,815.00 | 2,815.00 | - |
| | WQA-CE-Nature Based Solutions | 6196 | - | - | - |
| | Write-Off Doubtful Accounts | 6208 | - | - | - |
| **600 Total** | | | **800,279.00** | **1,672,715.27** | **(872,436.27)** |
| 602 | AS-Assistant Executive Directo | 6175 | - | - | - |
| | AS-Regulatory Program Manager | 6179 | - | - | - |
| | Academia Research & Development | 6203 | - | - | - |
| | Administrative Support | 6178 | - | - | - |
| | BDO Contract Expenses | 6186 | - | - | - |
| | Collateral Development | 6197 | - | - | - |
| | Program Manager Expense | 6202 | - | 122,051.30 | (122,051.30) |
| | Technology Research & Development | 6206 | - | - | - |
| **602 Total** | | | **-** | **122,051.30** | **(122,051.30)** |
| 605 | Recycled Water Evaluation | 6198 | 63,525.00 | - | 63,525.00 |
| | WQA - CEC Investigations | 6201 | 140,000.00 | 263,419.75 | (123,419.75) |
| | WQA-CE Addl Work Under Permit | 6191 | 100,000.00 | - | 100,000.00 |
| | WQA-CE Risk Reduction | 6190 | 7,500.00 | 25,000.00 | (17,500.00) |
| | WQA-CE Voluntary Nutr Contrib | 6193 | | - | - |
| | WQA-CE-Nature Based Solutions | 6196 | 248,811.00 | 299,224.50 | (50,413.50) |
| | WQA-CE-Nutrient WS Permit Comm | 6188 | 2,600,000.00 | 2,200,000.00 | 400,000.00 |
| | WQA-CE-Technical Support | 6181 | 100,000.00 | - | 100,000.00 |
| | WQA-NMSReviewer | 6205 | 50,000.00 | 50,000.00 | - |
| **605 Total** | | | **3,309,836.00** | **2,837,644.25** | **472,191.75** |
| 606 | Administrative Support | 6178 | - | 39,142.79 | (39,142.79) |
| | BDO Fund Transfers | 6141 | - | 30,000.00 | (30,000.00) |
| **606 Total** | | | **-** | **69,142.79** | **(69,142.79)** |
| 610 | Administrative Support | 6178 | - | 2,601.00 | (2,601.00) |
| | BDO Contract Expenses | 6186 | - | 587.61 | (587.61) |
| **610 Total** | | | **-** | **3,188.61** | **(3,188.61)** |
| **Grand Total** | | | **4,110,115.00** | **4,704,742.22** | **(594,627.22)** |

# BACWA EXECUTIVE BOARD ACTION REQUEST

**AGENDA NO.: 5**

**MEETING DATE:** April 15, 2022

**TITLE: Fiscal Year 2023 Budget & Workplan**

☐**RECEIPT** ☐**DISCUSSION** ☐**RESOLUTION** ☒**APPROVAL**

## RECOMMENDED ACTION

Approve the Budget and Workplan for the fiscal year covering July 1, 2022 through June 30, 2023.

## SUMMARY

The Joint Powers Agreement establishing BACWA requires approval of a Budget and Workplan for the coming fiscal year's activities no later than June of the preceding fiscal year.

Draft versions of the budget were reviewed first with the Finance Committee and then at the February 18, 2022 and March 18, 2022 Executive Board meetings. There were a few comments from the Board, and this final budget and workplan is ready to be approved.

## FISCAL IMPACT

The final budget has revenues of $2,852,495 and expenses of $3,420,628 resulting in a negative variance of expenses over revenues of $578,133 for FY 23 which will be transferred from reserves.

## ALTERNATIVES

Do not approve the Budget and Workplan: This is not recommended as the budget has been reviewed by the Finance committee and Executive Board.

Attachments:
FY 2023 Budget and Workplan

Approved: _____ Date: _____
Amit Mutsuddy,
Chair, BACWA Executive Board

| BACWA BAY AREA CLEAN WATER AGENCIES | | | |
|---|---|---|---|
| ***BACWA FY23 BUDGET*** | ***Line Item Description*** | **FY23 Budget** | **FY23 NOTES** |
| ***REVENUES & FUNDING*** | | | |
| **Dues** | Principals' Contributions | $527,250 | FY23: 2% increase 5 @ $105,450 |
| | Associate & Affiliate Contributions | $187,793 | FY23: 2% increase. 12 Assoc: $8702; 47 Affiliate: $1743 |
| **Fees** | Clean Bay Collaborative | $675,000 | Prin: $450,000; Assoc/Affil: $225,000 |
| | Nutrient Surcharge | $1,400,000 | See Nutrient Surcharge Spreadsheet |
| | Member Voluntary Nutrient Contributions | | |
| **Other Receipts** | AIR Non-Member | $7,217 | 2% increase (Santa Rosa) |
| | BAPPG Non-Members | $4,033 | 2% increase (Sta Rosa, Sac Reg'l, Vacaville) $1,344/each |
| | Other | | |
| **Fund Transfer** | Special Program Admin Fees (WOT) | $5,202 | |
| | BACC Admin Fees | $36,000 | 400 hours of AED support $90/hr |
| | BABC Admin Fees | $6,000 | ED, AED and RPM support |
| **Interest Income** | LAIF | $4,000 | BACWA, Legal, & CBC Funds invested in LAIF |
| | Higher Yield Investments | | |
| | **Total Revenue** | **$2,852,495** | |
| ***BACWA FY23 BUDGET*** | ***Line Item Description*** | **FY 23 Budget** | **FY23 NOTES** |
| ***EXPENSES*** | | | |
| **Labor** | | | |
| | Executive Director | $204,250 | 7.5% increase (flat in FY22) |
| | Assistant Executive Director | $86,004 | 7.5% over FY21; $71.67/hour; Reflects 1200 hours |
| | BACC Administrator | $36,000 | 400 hrs AED support at $90 per hr |
| | Regulatory Program Manager | $142,223 | 7.5% increase (flat in FY22); $103.35/hour, Reflects 1350 hours |
| | **Total** | **$468,477** | |
| **Administration** | | | |
| | EBMUD Financial Services | $43,297 | 2% increase |
| | Auditing Services | $5,452 | Finanical Auditors through EBMUD; per auditor rate schedule |
| | Administrative Expenses | $8,118 | 2% increase over FY22 |
| | Insurance | $8,132 | 15% increase over FY22 actual |
| | **Total** | **$64,999** | |
| **Meetings** | | | 21 |

| ***EXPENSES*** | | | |
|---|---|---|---|
| | EB Meetings | $2,706 | 2% increase from FY22 |
| | Annual Meeting | $14,369 | 2% increase from FY22 |
| | Pardee | $6,668 | 2% increase from FY22 |
| | Misc. Meetings | $5,412 | 2% increase from FY22 |
| | **Total** | **$29,155** | |
| | | | |
| **Communication** | | | |
| | Website Hosting / Domain registration | $714 | 2% increase from FY22, Go Daddy website hosting and domain registration |
| | File Storage | $780 | 2% increase from FY22, box.net |
| | Website Development/Maintenance | $1,561 | 2% increase from FY22 |
| | IT Support (As Needed) | $2,705 | 2% increase from FY22 |
| | Other Communication | $1,821 | 2% increase from FY22; MS Exchange, Survey Monkey, PollEv, Zoom, Netfile |
| | **Total** | **$7,581** | |
| | | | |
| **Legal** | | | |
| | Regulatory Support | $2,871 | 2% increase from FY22 |
| | Executive Board Support | $2,309 | 2% increase from FY22 |
| | **Total** | **$5,181** | |
| | | | |
| **Committees** | | | |
| | AIR | $76,000 | $75k consulting support, $1k misc expenses |
| | AIR support for ACE | $20,000 | New for FY23 |
| | BAPPG | $130,600 | Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000. |
| | Biosolids Committee | $0 | |
| | Collections System | $1,000 | Same as FY23 |
| | InfoShare Groups | $1,000 | |
| | Laboratory Committee | $6,400 | TNI standard training and meetings |
| | Permits Committee | $1,000 | |
| | Pretreatment | $1,000 | |
| | Recycled Water Committee | $20,000 | |
| | Misc Committee Support | $45,000 | |
| | Manager's Roundtable | $1,000 | |
| | **Total** | **$303,000** | |
| | | | |
| **Collaboratives** | | | |
| | **Collaboratives** | | |
| | State of the Estuary (SFEP-biennial) | $20,000 | Bienniel in Odd Fiscal Years. (Paid bienniely in odd years for even year conference) |
| | Arleen Navarret Award | $2,500 | Bienniel in Even Fiscal Years. Increase in FY20. 2022 Award to be paid in FY23 |
| | BayCAN | $5,000 | |

| | | | |
|---|---|---|---|
| ***EXPENSES*** | | | |
| | Stanford ERC (ReNUWIt) | $0 | Program is sunsetting |
| | Bay Area One Water Network | $5,000 | New for FY23 |
| | Bruce Wolf Scholarship | $4,000 | FY22, FY23, FY24, FY25 FY26 |
| | Misc | $1,500 | NBWA |
| | **Total** | **$38,000** | |
| | | | |
| **Other** | | | |
| | **Unbudgeted Items** | | |
| | Other | $0 | |
| | | **$0** | |
| | | | |
| **Tech Support** | | | |
| | **Technical Support** | | |
| | **Nutrients** | | |
| | Watershed Permit NMS Contribution | $1,800,000 | Advance funding for 2nd Watershed Permit Sciece Studies; Final $ TBD |
| | NMS Voluntary Contributions | $0 | |
| | Additional work under permit | $100,000 | Includes HDR PO for $225k spread out over FY20-24. |
| | Regional Study on Nature Based Systems | $248,811 | SFEI $500K, expires 06/30/2023 |
| | Regional Recycling Evaluation | $63,525 | HDR $154K, expires 12/31/2023 |
| | Nutrient Workshop(s) | $0 | Pilot Studies/Plant Review/Innovative Technologies |
| | NMS Reviewer | $50,000 | M. Connor Contract |
| | General Tech Support | $100,000 | AB617 emissions factors, PFAS, other nutrient support |
| | CEC Investigations | $140,000 | PFAS Study Phase II |
| | Risk Reduction | $12,500 | APA FSS completed $12,500 contract in FY20, CIEA will complete $12,500 contract in FY23 |
| | **Total** | **$2,514,836** | |
| | | | |
| | **TOTAL EXPENSES** | **$3,431,228** | |
| | | | |
| | **NET INCOME BEFORE TRANSFERS** | **-$578,733** | |
| | **TRANSFERS FROM RESERVES** | **$578,733** | aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge |
| | **NET INCOME AFTER TRANSFERS** | **$0** | |
| | **TOTAL OPERATING BUDGET** | **$916,392** | |
| | **OPERATING RESERVE** | **$229,098** | |

# Budget & Workplan

FISCAL YEAR 2023

BACWA
BAY AREA
CLEAN WATER
AGENCIES

# Table of Contents

# INTRODUCTION

The Bay Area Clean Water Agencies (BACWA) is a joint public powers agency created by a 1984 Joint Powers Agreement (JPA) between the Central Contra Costa Sanitary District (CCCSD), the East Bay Dischargers Association (EBDA), the East Bay Municipal Utility District (EBMUD), the City of San Francisco, and the City of San Jose (collectively, "the Principal Agencies"). The JPA requires approval of an annual budget and workplan divided into three parts: overhead (Part A), general benefit programs (Part B), and special benefit programs (Part C).

The JPA requires that revenues for each fiscal year be equivalent to anticipated expenditures. Expenditures for Management & Administration (Part A), and General Benefit Programs (Part B) are funded by all BACWA members because these programs are carried out on behalf of all member agencies.

Since adoption of the Annual Budget for fiscal year 1984, and each fiscal year thereafter, the Executive Board has allocated Part A and Part B costs pursuant to authority provided in Section 10 of the Joint Powers Agreement among Member Agencies in the following manner (the "Allocation Method"): a. a stated portion to the Original Signatory Members in equal shares; and b. the balance to Associate and Affiliate Members based on one or more of several factors consisting of the type of agency, size of plant, metals loadings, and total inorganic nitrogen loadings in the ratio that their share is to that of the total Associate and Affiliate Membership. On September 26, 2014 BACWA formally adopted this allocation through Executive Board Resolution R-2015-01. BACWA currently has two General Benefit Programs: the core BACWA program to support member agencies and the Clean Bay Collaborative. Expenditures for Special Benefit Programs (Part C) are funded by those agencies that elect to fund those programs because those benefits accrue primarily to those participating agencies.

In FY22 BACWA had three Special Benefit Programs, all of which conform to the JPA requirements under Part C.: Water Operator Training, the Bay Area Biosolids Coalition (BABC), and the Bay Area Chemical Consortium (BACC). The Water Operator Training program, also known as the Bay Area Consortium for Water/Wastewater Education (BACWWE) is a group of BACWA agencies who provide funding for operator educational opportunities. The Bay Area Biosolids Coalition is comprised of a subset of BACWA members who are pursuing alternatives for biosolids beneficial reuse and/or disposal in order to meet regulatory requirements for diversion of organics from landfills. The Bay Area Chemical Consortium is comprised of BACWA agencies as well as additional public water and wastewater agencies who work together to develop group chemical bids.

The purpose of this document is to fulfill the requirements of the JPA for Fiscal Year 2023 (FY22). This workplan and budget specify the purpose of each of BACWA's programs during FY22, the methods by which they will be carried out, the products that will be developed, and the persons responsible for implementation. The schedule for implementation of these programs is July 1, 2022 through June 30, 2023.

## STRATEGIC PLAN

BACWA adopted its first strategic plan and accompanying workplan in 2009. BACWA reformulated its strategic plan in 2020 and adopted updates in 2022. The strategic plan states the mission, vision values and goals of the organization as demonstrated in the work undertaken annually by the agency.

**BACWA's Mission**
To provide an effective regional voice for clean water agencies' stewardship of the San Francisco Bay's ecological, community, and economic resources.

**BACWA's Vision**
To demonstrate leadership in the protection and enhancement of the San Francisco Bay ecosystem.

**BACWA's Values**

- Environmental stewardship
- Leadership
- Science-based decision making
- Collaboration
- Fiscal responsibility
- Watershed-based solutions

**BACWA's Goals**

- Advocate for regulation based on science
- Foster collaboration and relationship building with regulators and other stakeholders
- Pursue regional, multi-benefit solutions to environmental challenges
- Exemplify service and responsiveness to members and the public
- Practice good governance

## MANAGEMENT AND ADMINISTRATION (PART A)

BACWA has administrative and management expenses that are necessary for the agency to carry out its non-program related core functions (JPA, Section 9). They include expenses related to financial management, insurance, and organizational support. Administration of BACWA is carried out under contract by an Executive Director (ED), Assistant Executive Director (AED), and Regulatory Program Manager (RPM) selected by the Executive Board. Treasurer services are provided through an agreement with EBMUD who manages BACWA's finances and oversees the annual audit which is conducted by an independent auditor. The objective of these expenditures is to ensure effective, efficient, and transparent management of BACWA, which serves BACWA's goal to practice good governance. BACWA management and administration are funded through BACWA dues.

| Management & Administration (A) | | | | |
|---|---|---|---|---|
| **Goal** | **Deliverables/Outcomes** | **Lead** | **FY23 Budget** | **Budget Line** |
| **A.** Practice Good Governance<br><br>(**Labor, Meetings, Legal, Administration**) | **A.1.** Monthly Treasurer Reports, | ED, AED, EBMUD | $43,297 | Administration/ EBMUD Financial Services |
| | **A.2.** Annual audit | ED, AED, Auditor | $5,452 | Administration/ Auditing Services |
| | **A.3.** Miscellaneous Operational Expenses | ED, AED, RPM | $8,118 | Administration/ Administrative Expenses |
| | **A.4.** Insurance to manage organizational risk | ED, AED | $8,132 | Administration/ Insurance |
| | **A.5.** Compliance with organizational legal requirements | ED, AED | $2,309 | Legal/Executive Board Support |
| | **A.6.** Program Administration and Operations Support | ED, AED, RPM | $130,864 | Labor/<br>ED (15%),<br>RPM (10%)<br>AED (100%), |
| | **A.7.** BACWA Executive Board Meetings & Administrative Expenses | ED, AED | $2,706 | Meetings/Exec. Board Meetings |
| | **A.8.** Pardee Technical Seminar & Administrative Expenses | ED, AED | $6,668 | Meetings/ Pardee Seminar |
| | **A.9** Miscellaneous Meeting & Administrative Expenses | ED, AED, RPM | $5,412 | Meetings/ Misc. Meetings |
| | **A.10.** File Storage | ED, AED | $780 | Communications/File Storage |
| | **A.11.** IT Support (As Needed) | ED, AED | $2,705 | Communications/IT Support |
| | **A.112.** Software (As Needed) | ED, AED | $1,821 | Communications/Software |
| | | **TOTAL** | **$218,264** | |

# GENERAL BENEFIT PROGRAMS (PART B)

There are two aspects of BACWA's general benefit program: the core BACWA Member Agency program and the technically–focused Clean Bay Collaborative (CBC) program. Activities in these Programs are supported by the ED, AED, RPM, volunteers who Chair the BACWA Committees, and consultant support as needed.

## BACWA MEMBER AGENCY PROGRAM (PART B1)

The **BACWA Member Agency Program (B1)** serves BACWA's goals to (1) exemplify service and responsiveness to members and the public; and to (2) foster collaboration and relationship building with regulators and other stakeholders

These goals are accomplished by providing member agencies with information on regulations, scientific and technical developments; forums for participating in policy discussions and collaborating on mutually beneficial projects; and opportunities to engage with the larger Bay Area environmental community.

Program expenses include support for committee facilitation and special projects; member workshops and trainings; membership in state and national organizations that disseminate information to members; and communication expenses such as the website, newsletters, the annual report, and the annual meeting. The BACWA Member Agency program is funded by BACWA dues.

## CLEAN BAY COLLABORATIVE (CBC) (PART B2)

The purpose of the **CBC program (B2)** is to respond to current regulatory requirements and to develop scientific, technical, and industry information to inform future regulations and policies affecting Bay Area POTWs and the environment. These effort support BACWA's goals to: (1) Advocate for regulation based on science; (2) Foster collaboration and relationship building with regulators and other stakeholders; and (3) Pursue regional, multi-benefit solutions to environmental challenges. Program expenses include the costs of targeted special studies and reports requested by or used to inform policy discussions with regulatory agencies, policy strategy development and implementation, and collaborations with statewide organizations to do the same. The CBC program is funded through CBC fees and the Nutrient Surcharge.

**Bay Area Clean Water Agency Program (B1)**

| Goal(s) | Deliverables/Outcomes | Lead | FY23 Budget | Budget Line |
|---|---|---|---|---|
| **B1.** Exemplify service and responsiveness to members and the public; and foster collaboration and relationship building with regulators and other stakeholders (**Committees, Labor, Meetings, Administration, Communications, Collaborations**) | **B1.1.** AIR Committee Support<br>- Admin Support<br>- Technical Support | Chair, AED, RPM, Consultant | $76,000 | Committees/AIR Comm. |
| | **B1.2.** AIR Support for ACE | | $20,000 | Committees / AIR support for ACE |
| | **B1.3.** BAPPG Committee Support<br>- Multiple Programs for public education and outreach, and regulatory advocacy | Chair, AED, RPM, Consultants | $130,000 | Committees/BAPPG Comm. |
| | **B1.4.** Biosolids Comm. Support<br>- Misc. Expenses | Chair | $0 | Committees/Biosolids Comm. |
| | **B1.5.** Collection Systems Comm. Support<br>- Misc. Expenses | Chair, RPM | $1,000 | Committees/Collection Systems Comm. |
| | **B1.6.** InfoShare Groups Support (Ops & Maint/Asset Mgmt)<br>- Misc. Expenses | Chair, RPM | $1,000 | Committees/Asset Management and O&M InfoShare Groups |
| | **B1.7.** Laboratory Comm. Support<br>- Misc. Expenses | Chair, RPM | $6,400 | Committees/Laboratory Comm. |
| | **B1.8.** Permits Comm. Support<br>- Misc. Expenses | Chair, RPM | $1,000 | Committees/Permits Comm. |

| | | | | |
|---|---|---|---|---|
| | **B1.9.** Pretreatment Committee, - Misc. Expenses | Chair | $1,000 | Committees/Pretreatment Comm. |
| | **B1.10.** Recycled Water Comm., Misc. Expenses | Chair, RPM | $20,000 | Committees/Recycled Water Comm. |
| | **B1.11** Misc. Committee Support | ED, AED, RPM | $45,000 | Committees/ Misc. Comm. Support |
| | **B1.12.** Manager's Roundtable, Misc. Expenses | ED, AED | $1,000 | Committees/ Manager's Roundtable |
| | **B1.13.** Executive Director | Board Chair | $173,612 | Labor/ ED (85%) |
| | **B1.14.** Legal Support, provide review of regulatory products | ED | $2,871 | Legal/ Regulatory Legal Support |
| | **B1.15.** Regulatory Program Manager | RPM | $99,556 | Labor/ RPM (70%) |
| | **B1.16.** Annual Meeting | ED, AED, RPM | $14,369 | Meetings/ Annual Meeting |
| | **B.17.** Website Hosting | ED, AED, Consultant | $714 | Communications/ Website Hosting |
| | **B.18.** Website Development/Maintenance | ED, AED, RPM, Consultant | $1,561 | Communications/ Website Dev/Maint |
| | **B1.19.** State of the Estuary | ED, AED | $20,000 | Collaboratives, State of the Estuary |
| | **B1.20.** Arleen Navarret Award | ED, AED | $2,500 | Collaboratives, Arleen Navarret Award |
| | **B1.21.** BayCAN | ED, AED | $5,000 | Collaboratives, New FY22 |
| | **B1.22** Bay Area One Water Network | | $5,000 | Collaboratives, Bay Area One Water Network |
| | **B1.23.** Bruce Wolf Scholarship | | $4,000 | Collaboratives / Bruce Wolf Scholarship |
| | **B1.24.** Miscellaneous | ED, AED | $1,500 | Collaboratives, Misc. |
| **Clean Bay Collaborative (B2)** | | | | |
| **B2. Clean Bay Collaborative** (1) Advocate for regulation based on science; (2) Foster collaboration and relationship building with regulators and other stakeholders; and (3) Pursue | **B2.1.** Watershed Permit NMS Contribution | ED, RPM, Consultant | $1,800,000 | Tech. Support/ Nutrients/Watershed Permit Obligation |
| | **B2.2.** NMS Voluntary Contributions | ED, RPM | $0 | Tech. Support/ Nutrients/Watershed/Vol Contributions |
| | **B2.3.** Additional Work Needed Under Permit | ED, RPM, Consultant | $100,000 | Tech. Support/ Nutrients/Add'l Work Under Permit/ GAR etc. |
| | **B2.4.** Regional Study on Nature Based Systems | ED, RPM, Consultant | $248,811 | Tech. Support/ Nutrients/Reg'l Study Non-Gray Scape |

| | | | | |
|---|---|---|---|---|
| regional, multi-benefit solutions to environmental challenges. | **B2.5.** Regional Recycled Water Evaluation | ED, RPM | $63,525 | Tech. Support/ Nutrients/Member Vol Nutrient Contributions |
| | **B2.6.** Nutrient Workshop(s) | ED, RPM, Consultant | $0 | Tech. Support/ Nutrient Workshop(s) |
| | **B2.7.** NMS Reviewer | Consultant | $50,000 | Tech. Support/NMS Reviewer |
| | **B2.8.** General Tech Support | ED, RPM, Consultants | $100,000 | Tech. Support, General Tech Support: PEEP, PFAS, Nutrient Review |
| | **B2.9.** CEC Investigations – support for regional PFAS study | ED, RPM, Consultants | $140,000 | Tech Support/CEC studies for POTWs – **New FY22** |
| | **B2.10.** Risk Reduction | ED, RPM, Consultants | $12,500 | Tech, Support/ Risk Reduction |
| | **B2.1.** General Technical and Regulatory Support | ED, RPM | $28,445 | Labor/ RPM (20%) |
| | | **TOTAL** | **$3,176,364** | |

## SPECIAL BENEFITS PROGRAMS (PART C)

BACWA has three active special benefit programs: Water Operator Training also known as BACWWE, Bay Area Biosolids Coalition (BABC), and Bay Area Chemical Consortium (BACC). These programs are administered under Part C of the JPA Annual Budget and Workplan.

Member dues for Wastewater Operator Training (BACWWE) are optional and are established on an annual basis by its Program members with training offered at community colleges throughout the BACWA service area. In FY22, BACWWE plans to transition to a scholarship-based class reimbursement model to increase the impact of the program and the number of community college courses that qualify.

BABC became a Special Benefits Program in FY 20. BABC is governed by a Steering Committee that establishes its budget and associated revenue needs on an annual basis. BABC funds support the furthering the goal of its strategic plan, which include communicating the value of biosolids, advancing scientific research, supporting the expansion of biosolids land application, and supporting the development of biosolids management options in the Bay Area.

BACC became a Special Benefits Program in FY 20. BACC is an administrative program governed by BACWA and supported by the BACWA ED and AED. BACC solicits chemical bid information from more than 60 member agencies, then arranges a group bid. BACC participant agencies are invoiced for BACWA labor and other expenses related to bid administration at the end of each fiscal year.

| WATER OPERATOR TRAINING (PART C1) | | |
|---|---|---|
| **Deliverables/Outcomes** | **Manager** | **FY 23 Budget** |
| Encourage development of a skilled workforce by offering classes in conjunction with a local community college. | Program Participant Reps; ED, AED | To be determined by member interest. |

| BAY AREA BIOSOLIDS COALITION (PART C2) | | |
|---|---|---|
| **Deliverables/Outcomes** | **Manager** | **FY 23 Budget** |
| Pursue alternatives for biosolids beneficial reuse and/or disposal in order to meet future regulatory requirements for diversion of organics from landfills | Program Participant Reps; ED, RPM, AED | To be determined by member interest. |

| BAY AREA CHEMICAL CONSORTIUM (PART C3) | | |
|---|---|---|
| **Deliverables/Outcomes** | **Manager** | **FY 23 Budget** |
| Administer a series of chemical bids for participating agencies. | ED, AED | To be determined by level of effort and expenses associated with program administration and legal reserve development. |

## FISCAL YEAR 2023 BUDGET

| BACWA/CBC | 2023 Budget | Notes |
|---|---|---|
| **REVENUES** | | |
| BACWA Principals' Contributions | 527,250 | 2% increase, 5@ $105,450 |
| BACWA Assoc. & Affil. Contributions | 187,793 | 2% increase. 12 Assoc: $8702; 47 Affiliate: $1743 |
| Clean Bay Collaborative (CBC) | 675,000 | Prin: $450,000; Assoc / Affil: $225,00 |
| Nutrient Surcharge | 1,400,000 | 2nd Watershed Permit Requirement |
| Voluntary Nutrient Contributions | 0 | |
| AIR Non-Members | 7,217 | 2% increase. |
| BAPPG Non-Members | 4,033 | 2% increase. |
| Other/Special Program Admin Fees (WOT) | 5,202 | No increase. |
| Other/Special Program Admin Fees (BABC) | 6,000 | Based on staff hours, AED, RPM, and ED |
| Other/Special Program Admin Fees (BACC) | 36,000 | 400 hours AED support |
| Interest Income (LAIF) | 4,000 | Includes BACWA & Nutrient Funds |
| Interest Income (higher yield Investments) | 0 | Alternative Investments |
| **TOTAL** | **2,852,495** | |

| EXPENSES | | |
|---|---|---|
| **Labor** | **468,477** | |
| Executive Director | 204,250 | 4.2% CPI (SF Bay Metro Area Dec 2021) |
| Assistant Executive Director | 86,004 | CPI (SF Bay Metro Area Dec 2021) $70.85/hr, Reflects 1600 hours / yr |
| BACC Administrator | 36,000 | 400 hrs AED support at $90 per hr |
| Regulatory Program Manager | 142,223 | 4.2% CPI (SF Bay Metro Area Dec 2021); $102.12/hour, Reflects 1350 hours |
| **Administration** | **64,999** | |
| EBMUD Financial Services | 43,297 | 2% increase |
| Auditing Services | 5,452 | Financial audit through EBMUD |
| Administrative Expenses | 8,118 | 2% increase |
| Insurance | 8,132 | 15% increase |
| | | |
| **Meetings** | **29,155** | |
| EB Meetings | 2,706 | 2% increase. |
| Annual Meeting | 14,369 | 2% increase. |
| Pardee | 6,668 | 2% increase. |
| Misc. | 5,412 | 2% increase. |
| **Communications** | **7,581** | |
| Web Hosting / Domain Registration | 714 | 2% increase. |
| File Storage | 780 | 2% increase, box.net |
| Website Development/Maint. | 1,561 | 2% increase. |
| IT Support (As Needed) | 2,705 | 2% increase. |
| Other Communications/Software | 1,821 | 2% increase. MS Exchange/Survey Monkey/Poll Everywhere/Zoom/ NetFile |
| **Legal Support** | **5,181** | |
| Regulatory Support | 2,871 | 2% increase |
| Executive Board Support | 2,309 | 2% increase |
| **BACWA Committees** | **307,400** | |
| AIR | 76,000 | Consultant support |
| AIR support for ACE | 20,000 | New FY23 |
| BAPPG | 130,000 | Technical support and outreach contracts |
| Biosolids Committee | 0.00 | |
| Collections System | 1,000 | |
| InfoShare Groups | 1,000 | |
| Laboratory Committee | 6,400 | TNI standard training and meetings |
| Permit Committee | 1,300 | |
| Pretreatment Committee | 1,000 | |
| Recycled Water Committee | 20,000 | |
| Misc. Committee Support | 45,000 | |
| Manager's Roundtable | 1,000 | |
| **Collaboratives** | **38,000** | |
| State of the Estuary | 20,000 | Biennial in odd fiscal years |
| Arleen Navarret Award | 2,500 | Biennial in even fiscal years |
| BayCAN | 5,000 | |
| Bay Area One Water Network | 5,000 | New FY23 |

| | | |
|---|---|---|
| Bruce Wolf Scholarship | 4,000 | FY22, FY23, FY24, FY25 FY26 |
| Misc. | 1,500 | NBWA |
| **Technical Support** | **$2,514,836** | |
| **Nutrients** | | |
| Watershed | 1,800,000 | Advanced funding for 2nd Watershed Permit Science Studies – not to exceed value. |
| NMS Voluntary Contributions | 0 | |
| Additional Work Under Permit | 100,000 | Includes HDR PO for $225K spread out over FY20-24 |
| Regional Study on Nature Based Systems | 248,811 | |
| Regional Recycling Evaluation | 63,525 | |
| Nutrient Workshop(s) | 0 | |
| NMS Reviewer | 50,000 | |
| General Technical Support | 100,000 | AB617 emissions factors, nutrient technical review, other nutrient support, PFAS |
| CEC Investigations | 140,000 | Support for studies through RMP |
| Risk Reduction | 12,500 | $25,000 over 5 yrs (FY19-23) 2 Contracts for $12,500 over each FY19, 20, 21, 22 |
| TOTAL | $3,430,628* | |

*FY23 Budget Expense Total includes BACC Administration expense and WorkPlan tables A&B do not.

| WOT | 2023 Budget (Est) | Notes |
|---|---|---|
| **REVENUES** | **0** | |
| Participant's Contributions | 0 | Est. depends on member interest. |
| | | |
| **EXPENSES** | **85,200** | |
| Contract expenses | 80,000 | Est. depends on member interest. |
| BACWA Indirect Expenses | 5,200 | Per BACWA Policy |
| TOTAL | -85,200 | Funding transferred from WOT reserve |

| BABC | 2023 Budget (Est) | Notes |
|---|---|---|
| **REVENUES** | **186,500** | |
| Participant's Contributions | 186,500 | Est. depends on member interest. |
| | | |
| **EXPENSES** | **186,500** | |
| Contract expenses | 180,500 | Est. depends on member interest. |
| BACWA Indirect Expenses | 6,000 | Per BACWA Policy |
| TOTAL | 0 | |

| BACC | 2023 Budget (Est) | Notes |
|---|---|---|
| **REVENUES** | **$72,251.25** | |
| Participant's Contributions | $72,251.25 | Est. equivalent to expenses. |
| | | |
| **EXPENSES** | **$72,251.25** | |

| | | |
|---|---|---|
| Bid software | $4067.75 | |
| BACC Legal reserve | $30,000 | Target total reserve $150,000 to be built over 5 years. |
| Miscellaneous expenses | $2,983.50 | |
| BACWA Indirect Expenses | $35,200 | Per BACWA Policy, reflect level of effort. |
| TOTAL | 0 | |

## BAPPG Budget FY 22-23

| | Budget |
|---|---|
| **Policy, Regulatory and Professional Training Support (Hughes)** | 16,000.00 |
| **Media Consultant (SGA)** | 30,000.00 |
| **Pesticide Regulatory Assistance (Hughes)** | 60,000.00 |
| **Our Water Our World Program** | 10,000.00 |
| **National Stewardship Action Council** | 5,000.00 |
| **California Product Stewardship Council** | 5,000.00 |
| **Website Consultant** | 600.00 |
| **Other Projects** | |
| Unplanned Issues | 4,000.00 |
| **Total BAPPG Budget** | **130,600.00** |

# EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

**AGENDA NO.:** 6

**DATE:** March 29, 2022

**TITLE: Executive Director Authorization for FY22 Support of North Bay Watershed Association Conference.**

## RECOMMENDED ACTION

Approval of request for sponsorship for the North Bay Watershed Association 2022 conference.

## SUMMARY

BACWA has received a request for support of the North Bay Watershed Association (NBWA) biennial Conference scheduled for Friday, April 8th, 2022, which will be held remotely. BACWA occasionally gets requests for support for conferences and other initiatives and will put the requests before the BACWA Executive Board, since they are discretionary. However, the request was made after the March BACWA Executive Board meeting and the conference is before the April Board meeting. Due to the short turnaround time on this request, presenting it at a Board meeting for approval was not feasible. The BACWA Executive Director discussed the request with the Executive Board Chair. They agreed to fund the request at the lowest level, since it shows support for our members in the North Bay and enhances regional collaboration among North Bay stakeholders.

BACWA supported the conference in 2016 and 2018 at the $1500 level, and BACWA offered the same level of support for 2022. Note that the conference was not held in 2020 due to COVID.

## FISCAL IMPACT

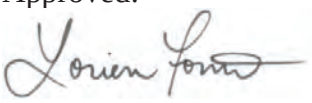
BACWA's FY22 Budget includes a line item in the amount of $1,500 for miscellaneous collaborative support that was earmarked in the budget notes for support of this conference. This line item has been used to support the Bay Area One Water Network at $5,000, although the overall Collaboratives section of the budget is anticipated to be underspent in FY22 since BACWA will not be invoiced by ReNUWIt.

## ALTERNATIVES

1. No consideration of alternatives is required.

*Attachment*: Email request for support from North Bay Watershed Association

Approved:



Date: March 29, 2022

Lorien Fono
Executive Director, BACWA

| | |
|---|---|
| **From:** | NBWA Executive Director |
| **To:** | Lorien Fono |
| **Subject:** | NBWA's 2022 Virtual Conference - Request for Sponsorship |
| **Date:** | Thursday, March 24, 2022 2:34:40 PM |
| **Attachments:** | Solicitation letter - Bay Area Clean Water Agencies-EBMUD.pdf |

Greetings,Ms. Lorien Fono,

We are writing today to invite you to become a sponsor of the North Bay Watershed Association's 2022 Virtual Conference:

**Climate Change(d): Weathering Extremes *Together***

Friday, April 8, 2022 from 9:00 a.m. to 3:00 p.m.

Partial list of confirmed speakers

- Congressman Jared Huffman
- Kamyar Guivetchi, CA Department of Waters Resources
- Paul Hernandez, Water Education for Latino Leaders
- James Muller, San Francisco Estuary Partnership
- Newsha Ajami, PhD, Berkeley Lab Earth and Environmental Sciences Area
- Roger Bales, PhD, Distinguished Professor of Engineering, UC Merced
- Rebecca Burgess, Fibershed
- Jessica Davenport, SF Bay Area Program, State Coastal Conservancy/ San Francisco Bay Restoration Authority
- Kendall Webster, Sonoma Land Trust
- Melanie Mow Schumacher, Soquel Creek Water District
- Douglas Mundo, Multicultural Center of Marin

The need for smart regional planning and cooperative action has become ever more urgent. The North Bay Watershed Association 2022 Conference will bring together key participants from around the state and the San Francisco Bay to focus on ways to improve water management and watershed health in the face of increasing threats. Speakers and panelists will discuss how we can bring new vision and energy to our efforts in collaborative water infrastructure planning and watershed restoration to better mitigate the escalating effects of growth pressures in a changing climate.

Your financial support will help promote this regional cooperation and the sharing of resources and information to help all of us create a more sustainable future for the North Bay.

Thank you for considering being a of sponsor of
**Climate Change(d): Weathering Extremes *Together***

Please see Sponsor Benefits below for how we plan to acknowledge your generous support.

- Water Collaborator $5,000
    - Special call out as a "Water Collaborator" during intermission highlight
    - Conference intermission logo highlight and project highlights
    - Name and logo on event program, NBWA website, and Eventbrite
- Water Colleague $2,500
    - Conference intermission logo highlight (and project highlights
    - Name and logo on event program, NBWA website, and Eventbrite
- Water Associate $1,500

- Name and logo on event program, NBWA website, and Eventbrite

If you would like to donate or have questions, please contact Frances Knapczyk at (707) 690 3124, or by email at Frances@naparcd.org. You can also contact me at northbaywa@gmail.com.

Sincerely,

Andy Rodgers, NBWA Executive Director
www.nbwatershed.org

BACWA
BAY AREA
CLEAN WATER
AGENCIES

April 8, 2022

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

VIA EMAIL: commentletters@waterboards.ca.gov

**Subject: Comment Letter – Draft Sanitary Sewer Systems General Order Reissuance**

Dear Jeanine Townsend:

The Bay Area Clean Water Agencies (BACWA) appreciates the opportunity to provide comments on the Draft Sanitary Sewer Systems Waste Discharge Requirements General Order (SSS-WDR), which is proposed to replace the current order adopted in 2006 ("2006 Order"; WQO No. 2006-0003) as well as the accompanying Monitoring & Reporting Program adopted in 2013 ("2013 MRP"; Order No. WQ 2013-0058-EXEC). BACWA's members include publicly-owned wastewater treatment works (POTWs) and collection system agencies serving 7.1 million people in the nine-county San Francisco Bay Area. BACWA members are public agencies, governed by elected officials and managed by professionals who protect the environment and public health.

BACWA supports the collaborative approach that State Water Board staff used to develop the draft SSS-WDR. In 2021, BACWA, the California Association of Sanitation Agencies (CASA), the Central Valley Clean Water Association (CVCWA) and the Southern California Alliance of Publicly-Owned Treatment Works (SCAP) worked extensively with State Water Board staff to provide feedback on the informal staff draft version of the draft SSS-WDR. These conversations clearly resulted in a draft SSS-WDR that reflects a deeper understanding of sewer system operations.

Because the 2006 Order has been successful in driving down the number and volume of spills, we ask that the State Water Board continue to limit the changes in the reissued SSS-WDR to those strictly necessary for improving the Order's clarity or enforceability. This includes maintaining the order as a WDR rather than as an NPDES permit. We also request streamlining of requirements wherever possible to reduce the administrative burden of its implementation.

BACWA's detailed comments on the draft SSS-WDR are found in **Attachment A**. Our priority issues are provided first in the attachment and mostly address issues we anticipate will create confusion or compliance problems. After those, the remaining comments are sequential with the draft SSS-WDR's organization and are submitted to help ensure clarity. The detailed nature of these comments reflect the importance of the SSS-WDR in guiding day-to-day sewer system operations. The draft Order will be interpreted and implemented by more than 1,100 public agencies, as well as new private enrollees, so the smallest details in the SSS-WDR have the potential for significant impacts. Our key suggestions for reducing the cost of compliance are:

1. **Remove New Prohibition 4.1.** Prohibitions need to be unambiguous for enrollees and enforcement division staff. Unfortunately, Prohibition 4.1 contains new terminology such as "potential to discharge to waters of the State" and "promptly cleaned up" that are not defined in the draft SSS-WDR, are not used in the industry, and are therefore subject to the discretion of enforcement staff. For complete details, see comment No. 1 on page 3 of Attachment A.

2. **Streamline Reporting of Category 4 Spills.** Category 4 spills pose a low threat to water quality. The draft SSS-WDR proposes a complex incentive system in which only certain enrollees with low spill rates would qualify for reduced reporting. We request that <u>all</u> enrollees report Category 4 spills within annual reports rather than monthly reports. For complete details, see comment No. 4 on page 7 of Attachment A.

3. **Remove New Requirements for Receiving Water Field Testing.** The new receiving water field testing requirements found in Section 2.3.2 of Attachment E will result in significant equipment and labor costs for enrollees. Unfortunately, despite this expense, the resultant data may not be useable for enforcement. Compliance with water quality objectives for turbidity and other parameters is based on an observed difference compared to background conditions, which exceeds the scope of the proposed sampling in the draft SSS-WDR. Due to the mismatch between effort and utility, this testing requirement should be removed. For complete details, see comment No. 8 on page 14 of Attachment A.

BACWA looks forward to continuing to work with State Water Board staff during implementation of the SSS-WDR. We have the following recommendations to ensure that the reissued SSS-WDR continues to reduce spill rates without draining critical resources away from agencies' core mission -- protecting the environment and public health:

1. **Establish an Implementation Committee.** Allocate State Water Board staff time to participate in a formal implementation committee with stakeholders, including enrollees, consultants, our member organizations, and other member organizations such as the California Rural Water Association. The purpose of the committee would be to develop guidance and evaluate the success of the reissued Order's requirements for spill response, CIWQS data management, annual reports, preparation of Sanitary Sewer Management Plans (SSMPs), auditing standards, and more. This guidance can then be distributed through formal training sessions offered by the member organizations and others

2. **Delay the Effective Date.** The effective date of the reissued SSS-WDR should **be at least 180 days** after the adoption date. Critically, this will allow agencies time to update their Spill Emergency Response Plans to reflect the requirements in the reissued SSS-WDR. It will also provide a smooth transition for agencies whose SSMPs are being updated around the time of the adoption hearing.

3. **Provide Compliance Assistance to Small and Disadvantaged Communities.** The SSS-WDR is a complex document, with many new requirements. Most enrollees do not have dedicated regulatory staff to respond to the reissued SSS-WDR. Of the 1,182 enrollees of the 2006 Order, more than 80% are small (less than 100 miles of sewer pipelines) and about 50% are very small (less than 20 miles of sewer pipelines). The State Water Board can help these agencies comply by:

    a. **Providing Simplified Templates** of SSMPs, audit reports, and annual reports that could be used by small enrollees or enrollees in disadvantaged communities. Templates can help clarify the minimum expectations for compliance, as well as providing a consistent structure for documenting agency information. The most challenging element of SSMPs and Annual Reports lays in the requirements to write original narrative explanations that start with "blank slates." This type of writing requires training, experience, and staff availability that many agencies cannot muster.

    In terms of facilitating the adoption of template-based tools, we would like to call the State Water Board's attention to its current work in assisting with the development of a templated Water Shortage Contingency Plan for small water suppliers.

    b. **Increasing funding** for sewer system capital improvements through the Clean Water State Revolving Fund (CSWRF). Originating and managing CWSRF funding is a challenging and time-consuming task that can sometimes exceed the administrative resources of enrollees. Unlike treatment plant projects, collection systems are comparatively simple. The State Water Board's input in facilitating the process for small and disadvantaged agencies would hasten and promote the overall goal of strengthened collection system infrastructure.

    c. **Providing planning grants** to small disadvantaged communities and small severely disadvantaged communities for assistance in resiliency planning, which is required is required by the draft SSS-WDR.

    Resiliency planning, because it is new to the collection system world with this draft SSS-WDR, requires technical, geological, and hydraulic skills that will be challenging for even the most sophisticated and well-financed agencies to execute. Grant assistance would be helpful for small disadvantaged agencies if they are expected to produce a technically respectable and compliant response to this requirement.

In closing, we appreciate the opportunity to comment on the draft SSS-WDR and look forward to continued dialogue with the State Water Board and your staff to finalize and adopt it. We also want to reiterate our gratitude to everyone who met us with over the last year for your

accessibility and in-depth discussions and language clarifications about the update to this Order. Please do not hesitate to contact us with any questions or concerns.

Respectfully Submitted,

Lorien Fono, Ph.D., P.E.
Executive Director
Bay Area Clean Water Agencies

**Enclosures:**

Attachment A – Detailed Comments on Draft SSS-WDR

cc: BACWA Executive Board
Andrew Damron, co-chair, BACWA Collection Systems Committee
Tyree Jackson, co-chair, BACWA Collection Systems Committee

**Attachment A**

The comments below identify requested changes to the draft SSS-WDR. Suggested additions are shown as underlined blue text. Suggested deletions are shown as ~~strikeout red text~~. A rationale is provided ahead of each suggested change.

After the priority remarks (Comments 1 through 8), comments are shown in roughly the order they appear in the draft SSS-WDR. For reference, "2006 Order" refers to State Water Board Order No. 2006-0003-DWQ. "draft SSS-WDR" refers to the version released for public comment on January 31, 2022.

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## 1. Remove Prohibition 4.1 (page 17)

Prohibition 4.1 is a new and unnecessary addition to the 2006 Order, and we respectfully recommend that it be removed. The stated purpose of Prohibition 4.1 is to increase the enforceability of the Order, according to commentary from State Water Board staff at the public workshop held on February 23, 2022. Unfortunately, the Order does not define several of the key elements of the newly proposed prohibition, so enforcement will be made more difficult, not less. It is left open to interpretation whether a spill has "potential" to reach water of the State and what counts as "promptly" and "cleaned up." At the February 23rd workshop, legal counsel admitted that interpretation of whether a spill has "potential" to reach waters of the State would require a "case-by-case analysis" by the Office of Enforcement. It would be unwise to adopt this prohibition when there is no established standard for compliance, and it would be unfair to adopt the prohibition with the assumption that the standards will be established at a future date by State Water Board staff, through case law, or separately by each Regional Board.

By contrast, the thresholds for compliance with Prohibition 4.2 (discharge to waters of the State) and Prohibition 4.3 (create a nuisance) are much clearer, and even though Prohibition 4.2 has been expanded from the 2006 Order to include Waters of the State, we do not protest that change because the underlying expectation is clear, derives from the existing 2006 Order, and has a direct linkage to the California Water Code.

Removing Prohibition 4.1 will have no effect on the enforceability of the Order. Prohibition 4.2 already prohibits discharge to waters of the State, so it is not necessary to further prohibit spills with "**potential** to discharge to waters of the State." Prohibition 4.3 already prohibits spills that create a nuisance, so it is not necessary to further prohibit spills that are not "promptly cleaned up." Large spills that are not cleaned up would create a nuisance if they meet the criteria listed in Attachment A of the draft SSS-WDR.

It is unresolved whether the State Water Board possesses the legal authority to regulate spills that could possibly impact Waters of the State or potentially create a nuisance – yet do not. The proposed markup shown below will allow for clear and continued enforcement.

[Page 17]

~~**4.1 Discharge of Sewage from a Sanitary Sewer System**~~

~~Any discharge from a sanitary sewer system that has the potential to discharge to waters of the State is prohibited unless it is promptly cleaned up and reported as required in this General Order.~~

**4.2. Discharge of Sewage to Waters of the State**

Any discharge from a sanitary sewer system, discharged directly or indirectly through a drainage conveyance system or other route, to waters of the State is prohibited.

**4.3. Discharge of Sewage Creating a Nuisance**

Any discharge from a sanitary sewer system that creates a nuisance or condition of pollution as defined in Water Code section 13050(m) is prohibited.

## 2. Strengthen the qualifications for a Legally Responsible Official, then remove the requirement for Sewer System Management Plans to have secondary certification by an Operator or Professional Engineer. Instead, require operator input during the Sewer System Management Plan audits required once every 3 years (Pages 17-19, 31).

The 2006 Order requires Sewer System Management Plans (SSMPs) be approved by two parties: (1) certification by a Legally Responsible Official and (2) approval by an Enrollee's governing board. The draft SSS-WDR retains these certification requirements, then goes a step further by requiring the SSMP to be approved by an additional party if the Legally Responsible Official is not either a: Certified Grade II "Operator" (CWEA Collection Systems Maintenance Grade 2 or Treatment Plant Operator Grade II) or Professional Engineer. While we appreciate the flexibility and discretion extended to Enrollees for determining who should serve as the Legally Responsible Official, we believe a more streamlined way to ensure that operations staff provide input to management on the SSMP is to obtain their input during the 3-year audit.

The necessary qualifications to be a Legally Responsible Official will vary widely depending on the size and complexity of the sewer system. However, the proposed language in 5.1 contains only generalized suggestions of qualified personnel who might assume the role of an agency's Legally Responsible Official. We think that Enrollees will be better served with qualification standards that are known to have been tested in litigation and are reliable in their usage. One such standard is found in the Occupational Safety and Health Administration (OSHA) regulations, which should suffice as a referent for use by the Water Board:

> *OSHA 29 CFR 1926.32(m) defines a **qualified person** as an individual "who, by possession of a recognized degree, certificate or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project."*

This language has been adapted to Section 5.1 in the markup below.

To explain and be sure about the intent behind this recommendation, the job levels specified (Certified Grade II "Operator") are not typically responsible for planning, engineering, or management, and the SSMP is a management planning document. Furthermore, this requirement will be a compliance burden on small systems, which may not have a certified operator or Professional Engineer on staff. The Legally Responsible Official, not the State Water Board, should be responsible for determining the level of technical assistance that is required to certify the SSMP.

In lieu of having operators certify the SSMP, we strongly support and encourage increasing the level of engagement with operations staff when developing the SSMP and the SSMP internal audits, which State Water Board staff explained at the public workshop held on February 23, 2022 was the motivation for adding this requirement. Many agencies already engage operations, engineering, and management staff in the development of their SSMP; we support and encourage this practice. For reinforcement, we propose adding operator input to the SSMP audits completed every three years. A proposed markup addressing the removal of the certification requirement from Section 5.3 and addition of operator input to Section 5.4 is shown below. The proposed markup of Section 6.2 shown below regarding Professional Licensing and Certification was adapted from Order WQO 2015-0121 (a General Order covering composting).

The markup of Section 5.5 (Audits) also proposes removal of a redundant requirement regarding identification of SSMP changes. One of the requirements is included in the list twice.

[Pages 17-19]

> 5.1 Designation of a Legally Responsible Official
> The Enrollee shall designate at least one Legally Responsible Official that has the appropriate knowledge and expertise of the enrolled sanitary sewer system(s) and is authorized to serve as a duly authorized representative. The Legally Responsible Official must have responsibility over management of the Enrollee's entire sanitary sewer system and be a qualified person who, by

possession of a recognized degree, certificate or professional standing, or through extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project. For example, a sewer system superintendent or manager, an operations manager, a public utilities manager or director, or a district engineer may be designated as a Legally Responsible Official.

…

**5.3 Certification of Sewer System Management Plan and Plan Updates**

The Sewer System Management Plan and subparts thereof must comply with the requirements of this General Order. The Sewer System Management Plan and all subsequent updates must be certified by~~:~~

~~1. T~~ the Legally Responsible Official; ~~and~~

~~2. One of the following if the Legally Responsible Official is not a certified collection system operator of Grade II or higher in accordance with Attachment F (Criteria for Equivalent Collection System Operator Certification Program) of this General Order, or is not a professional engineer licensed in the State of California~~:

> ~~Grade II Certified Collection System Operator through the California Water Environment Association, or equivalent certification program that meets criteria specified in Attachment F (Criteria for Equivalent Collection System Operator Certification Program) of this General Order; or~~
>
> ~~Grade II Wastewater Treatment Plant Operator through the State Water Board Wastewater Operator Certification Program, and employed for the wastewater treatment plant that receives the enrolled system's sewage; or~~
>
> ~~Professional Engineer registered through the California Department of Consumer Affairs.~~

The Legally Responsible Official shall upload its Sewer System Management Plan and subsequent updated Plans in the online CIWQS Sanitary Sewer System Database.

**5.4. Sewer System Management Plan Audits**

**…**

The internal program audit shall be appropriately scaled to the size of the system and the number of spills. At minimum, the audit must:

- Evaluate the implementation and effectiveness of the Enrollee's Sewer System Management Plan in preventing spills;
- Evaluate the Enrollee's compliance with this General Order;
- Identify Sewer System Management Plan deficiencies in addressing ongoing spills and discharges to waters of the State; and
- ~~Identify necessary modifications to the Sewer System Management Plan to correct deficiencies~~.
- Involve the Enrollee's sewer system operators in completing the evaluations listed above.

[Page 31]

**6.2. Professional Licensing and Certification**

~~All requirements in this General Order requiring the approval or certification of a registered professional engineer or certified operator must be signed (and stamped as applicable) by a professional that holds a current and valid:~~

~~• Certified Grade II Collection System Maintenance operator issued by the California Water Environment Association, or an equivalent certification program per the criteria specified in Attachment F (Criteria for Equivalent Collection System Operator Certification Program) of this General Order; or~~

~~• Professional Engineer License that is in accordance with the California Business and Professions Code sections 6735, 7835, and 7835.1.~~

The California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. Any plan or report submitted in compliance with the requirements of this Order, which requires technical interpretation, or proposes either a design, or a design change to a sanitary sewer system, must be prepared by, or under the direction of, appropriately licensed professionals (e.g., registered civil engineer, professional geologist, or other registered certified specialty geologist) by the State of California. In addition, the licensee must sign and provide their registration number, or stamp the submitted plan or report.

**3. The Order should clarify spill reporting requirements for Category 1 and Category 2 spills (page 22 and Attachment E2).**

The definition of Category 1 spills requires editing to clarify that spills to drainage conveyance systems that are fully cleaned up are not Category 1 spills. The phrase "tributary to waters of the United States" is problematic because it is ambiguous whether or not a spill would actually need to reach surface water to count as a Category 1 spill. "Tributary" erroneously implies that drainage conveyance systems are part of the receiving water system.

According to State Water Board staff at the February 2022 workshops, the second bullet in the definition conveys the original intent of this language: a spill actually needs to reach surface waters to count as a Category 1 spill. The ambiguous language in the first bullet should be removed for simplicity; the second bullet is sufficient. Alternatively, the word "tributary" could be replaced with the phrase "that discharges."

Additionally, the Category 2 spill response table needs significant edits so that it is clear to operators that some spills (i.e., spills to land that do not reach a water of the State) do not require OES notification and do not require receiving water monitoring. Category 2 spills under the 2013 Monitoring and Reporting Program were never spills to surface waters, so there was no need for this differentiation.

[Page 22]

**5.13.1. Individual Spill Notification, Monitoring and Reporting**

…

**Category 1 Spill**

A Category 1 spill is a spill of any volume of sewage from or caused by a sanitary sewer system regulated under this General Order, that results in a discharge to:

- Waters of the United States ~~, or a drainage conveyance system tributary to waters of the United States~~; or

- A drainage conveyance system that discharges to waters of the United States when the sewage is not fully captured and returned to the sanitary sewer system or disposed of properly.

[Pages E2-2]

**Table E2-2**

**Spill Category 2: Spills of 1,000 Gallons or Greater That Are Not Category 1 Spills**

| Spill Requirements | Due | Method |
|---|---|---|
| Notification | **Within two (2) hours** of the Enrollee's knowledge ofa spill of 1,000 gallons or greater, discharging or threatening to discharge to waters of the State:<br>• Notify California Office of Emergency Services and obtain notification control number; and/or<br>• Notify the State Water Board through the online CIWQS Sanitary Sewer System Database.<br>If the Category 2 spill is discharging to land, and is not discharging or threatening to discharge to waters of the State, notification to the California Office of Emergency Services is not required. | 1) California Officeof Emergency Services at: (800) 852-7550<br><br>2) https://ciwqs.waterboards.ca.gov<br><br>(Section 1 of Attachment E1) |
| Monitoring | • Conduct spill-specific monitoring; and<br>• Conduct receiving water monitoring If the spill discharged to surface waters of the State: | (Section 2 of Attachment E1) |
| | … | |

**4. All agencies should be allowed to report Category 4 Spills in the Annual Report rather than monthly. The proposed use of performance metrics to identify a subset of Enrollees that qualify for reduced reporting is not scalable statewide due to the variety of Enrollees (Page 25 and Attachments E1, E2).**

The State Water Board's approach to allow some well-performing agencies to report spills less than 50 gallons (Category 4 spills) in annual reports, rather than via CIWQS, is a positive affirmation of the reduced risk of these events to public health and the environment. We believe therefore that if Category 4 events are truly less of a threat, then no agencies should be required to expend the resources to prepare individual Category 4 spill reports for submittal to CIWQS. Instead, enrollees should report these occurrences in the Annual Report. Such a change would also reduce the cost of compliance with the draft SSS-WDR.

The draft SSS-WDR proposes performance metrics to qualify for the reduced reporting. These metrics ultimately will be inequitable, as they do not distinguish among Enrollees based on system size (larger Enrollees are more likely to have a spill exceeding 1,000 gallons) or whether an Enrollee has laterals (laterals are a frequent cause of small spills, which drive up spill rates). The proposed language also leaves

open the reduced reporting requirements, instead deferring to the State Water Board's Deputy Director to issue such requirements. This approach is likely to result in divergent requirements for different enrollees, as well as result in poor data quality when comparing spill rates among agencies, because some agencies may have included Category 4 spills in the CIWQS database, while other agencies will have not.

Due to the nonexistent risk to water quality and public health, and the fairness and data quality considerations described above, we propose a standardized approach to reporting Category 4 spills, as shown in the markup below. The elements included in this markup include:

- A stricter definition of Category 4 spills, to ensure that any spill categorized as a Category 4 does not threaten water quality of surface waters;
- "No spill" certification that is edited to exclude Category 4 spills; and
- Details for reporting requirements within the Annual Report.

The proposed edit does not reflect our position on operator training and certification. We are committed to working in partnership with State Water Board staff to develop and distribute operator training materials and to incentivize operator certification through other avenues.

[Page 25]

~~**5.18 System-Specific Reduced Reporting**~~

~~An Enrollee that certifies the following criteria to the State Water Board may qualify for system-specific reduced reporting for Category 4 spills by maintaining onsite recordkeeping, in place of public reporting into the online CIWQS Sanitary Sewer System Database:~~

~~• The Enrollee maintains the following system-specific performance for a minimum of five (5) consecutive years:~~

~~o No more than two spills per 100 miles of system, per year;~~

~~o Total volume of individual spills not to exceed 1,000 gallons; and~~

~~o Spills do not discharge to waters of the United States.~~

~~• At least 50 percent (50%) of the Enrollee's operation and maintenance workforce is certified in Collection System Maintenance through the California Water Environment Association, or equivalent certification program that meets criteria specified in Attachment F (Criteria for Equivalent Collection System Operator Certification Program) of this General Order.~~

~~To qualify for the reduced reporting of Category 4 spills, an Enrollee must provide a System-Specific Reduced Reporting Request Package to the State Water Board, at SanitarySewer@waterboards.ca.gov, containing the following information:~~

~~1. A request letter signed by the Enrollee's Legally Responsible Official to the Deputy Director justifying approval of reduced reporting for Category 4 spills;~~

~~2. Number of total system operation and maintenance staff/positions that are required to perform field operations and maintenance tasks per documented responsibilities of corresponding position duty statements;~~

~~3. Number of total certified system operation and maintenance staff that perform field operations and maintenance tasks per documented responsibilities of their position duty statements; and~~

~~4. The following certification that the Enrollee has reported spills from its system, in accordance with this General Order, into the online CIWQS Sanitary Sewer System Database in the last five (5) years.~~

~~"I certify under penalty of perjury, under the laws of the State of California, that the [Enrollee Name] has submitted all required spill reports in accordance with the waste discharge requirements in effect during the time of the spills."~~

~~The Deputy Director will consider approval of each Reduced Reporting Request Package on a system-specific basis. If approved, the Enrollee may substitute reporting of Category 4 spills for that system per instructions and conditions in the approval letter.~~

[Page 22]

**5.13.1. Individual Spill Notification, Monitoring and Reporting**

Category 4 Spill

A Category 4 spill is a spill of less than 50 gallons, from or caused by a sanitary sewer system regulated under this General Order that is not a Category 1 Spill, does not reach surface waters of the State, and does not create a nuisance as defined in this Order.

[Page E1-11]

**3.2. Monthly Certified Spill Reporting for Individual Category 3 ~~and Category 4~~ Spills**

The Enrollee shall report and certify all Category 3 ~~and Category 4~~ spills to the online CIWQS Sanitary Sewer System Database within 30 calendar days after the end of the month in which the spills occurred. (For example, all Category 3 ~~and Category 4~~ spills occurring in the month of February shall be reported and certified by March 30th). After the Legal Responsible Official certifies the spills, the online CIWQS Sanitary Sewer System Database will issue a spill event identification number for each spill.

The monthly reporting of all Category 3 ~~and Category 4~~ spills must address the following items for each spill:

[Page E1-13]

**3.3 Monthly "No- Spills" Certification**

If no Category 1, Category 2, or Category 3 spills occur during a calendar month, the Enrollee shall certify, within 30 calendar days after the end of each calendar month, a "No-Spill" certification statement in the online CIWQS Sanitary Sewer System Database certifying that there were no Category 1, Category 2, or Category 3 spills for the designated month.

If a Category 1, Category 2, or Category 3 spill starts in one calendar month and ends in a subsequent calendar month, and the Enrollee has no further Category 1, Category 2, or Category 3 spills in the subsequent calendar month, the Enrollee shall certify "no-spills" for the subsequent calendar month.

If the Enrollee has no Category 1, Category 2, or Category 3 spills from its systems during a calendar month, but the Enrollee voluntarily reported a spill from a private lateral or a private system, the Enrollee shall certify "no-spills" for that calendar month.

[Page E1-13 to E1-15]

**3.5. Annual Report (Previously termed as Collection System Questionnaire in General Order 2006-0003-DWQ)**

…

The Annual Report (an Annual Report update) must address the following items:

…

• A Summary of Category 4 Spills that occurred in the previous calendar year that shall include;

• Total number of Category 4 Spills

• A breakdown of causes for Category 4 Spills (e.g., Roots; Fats, Oils, and Grease; Foreign Object)

•Total gallons spilled from Category 4 Spills

•Total gallons recovered from Category 4 Spills

[Page E1-17]

**4.4. Recordkeeping for Category 4 SSOs ~~per System-specific Reduced Reporting~~**

~~An Enrollee that receives Deputy Director approval of its Reduced Reporting Request per section 5.18. (System-specific Reduced Reporting) of this General Order (System Specific Reduced Reporting)~~ Enrollees must maintain records of all Category 4 spill information for five (5) years ~~in accordance with the corresponding Reduced Reporting Request Approval.~~

[Page E2-3]

**Table E2-3**
**Spill Category 3 ~~and Category 4~~: Spills More than 50 and Less Than 1,000 Gallons and Not Category 1 Spills**

| Spill Requirements | Due | Method |
|---|---|---|
| Notification | Not Applicable | Not Applicable |
| Monitoring | • Conduct spill-specific monitoring~~; and~~<br>• ~~Conduct receiving water monitoring.~~ | (Section~~s~~ 2 of Attachment E1.) |
| Reporting | • Submit monthly Certified Spill Report to the onlineCIWQS Sanitary Sewer System Database within 30 calendars days after the end of the month in which the spills occur; and<br>• Submit Amended Spill Reports within 90 calendardays after the spill end date. | (Section 3.2 and 3.4 of Attachment E1.) |

**Table E2-4**
**Spill Category 4: Spills Less Than 50 Gallons and Not Category 1 Spills**

| Spill Requirements | Due | Method |
|---|---|---|
| Notification | Not Applicable | Not Applicable |
| Monitoring | Conduct spill-specific monitoring | Section 2 of Attachment E1 |
| Reporting | • Submit summary of total number of spills, total volume spilled, total volume recovered, and causes in Annual Report<br>• Retain all Category 4 spill records in-house for five (5) years | Section 3.5 of Attachment E1 |

**5. The definition of Exfiltration should be simplified, and there should be a reasonable likelihood of exfiltration reaching a water of the State before repairs must be prioritized (Pages A-2, D-8).**

In the draft SSS-WDR, Attachment A offers a precise definition of exfiltration ("the underground exiting of sewage from a sanitary sewer system") but then includes additional examples in the definition which *may* cause exfiltration, but do not necessarily cause exfiltration in all cases. For example, corrosion would result in exfiltration only if it becomes extreme enough to cause additional pipe failure. Accordingly, we think this definition would be improved if it were simplified by transferring those considerations into the SSMP's condition assessment provision in Element 8.1, as their placement in the definition otherwise misrepresents the process of exfiltration and its impacts, and uses terminology that does not align with current industry standards. For example, the prevalent industry terms are "offset" or "separated" joints, not "misaligned joints," as in the definition. Other industry standards or agencies own systems use different terms for this matter referring to the *severity* of conditions.

Additionally, it would be beneficial to include the specification about when exfiltration is a spill in this definition. We acknowledge that elsewhere in our comments we have requested consolidation of duplicative language. However, in this instance, we believe the repetition would enhance the definition's clarity. The proposed definition below is copied from page 1 of the draft SSS-WDR.

Our final request regarding exfiltration language is for Element 8.1 of the SSMP to establish a stronger linkage with potential water quality impacts when prioritizing rehabilitation and repairs. The draft SSS-WDR suggests prioritizing repairs where sewage "may be potentially entering" into a water of the State, which is not an appropriate standard. As a permit requirement, the standard should be tightened to require prioritizing repairs only when there is a reasonable likelihood that sewage is reaching waters of the State.

Suggested language is shown below.

[Page A-2]

> **Exfiltration**
>
> Exfiltration is the underground exiting of sewage from a sanitary sewer system ~~through cracks and/or corrosion in pipes, misaligned joints, or broken/failed infrastructure~~. Exfiltration of sewage is not considered to be a spill under this General Order if the exfiltrated sewage remains in the subsurface and does not reach a surface water of the State.

[Page D-8]

**8.1 System Evaluation and Condition Assessment**

Utilize observations/evidence of system conditions such as severe fractures or separated joints that may contribute to sewage exiting the system and having a reasonable likelihood of ~~that may be potentially~~ entering into a water of the State, for prioritization of rehabilitation and/or repair of compromised system component accordingly; and

**6. Logistical and security concerns make it inappropriate to require complete, up-to-date maps within the publicly available Sewer System Management Plans (Page D-4).**

The 2006 Order requires that Enrollees "**Maintain** an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities" (emphasis added). By contrast, the draft SSS-WDR requires the Sewer System Management Plan to include the map. This requirement is infeasible for three reasons:

- **Logistical concerns.** Many Enrollees, particularly larger agencies, maintain their maps in continuously updated digital databases (e.g., GIS). It is more useful for the Sewer System Management Plan to describe the maintenance and access of this database than for the Plan to include static, exported information from the database. By definition, a map exported from this system would be considered "up-to-date" for only a short time following export.

- **Jurisdictional separation of system data.** Many sanitary sewer system agencies – especially single-purpose sanitary districts – are reliant on other agencies for stormwater system information and do not incorporate stormwater data on their sanitary system maps. Instead, they typically transport – or have online access to – separate map sets to inform themselves of stormwater system infrastructure and flow characteristics. The requested language provides for Enrollees to maintain separate but readily available stormwater system information.

- **Security concerns.** Provision 6.4 of the draft SSS-WDR requires that Sewer System Management Plans be made available to the public on an Enrollee's website. Many agencies have security concerns with sharing detailed infrastructure information with the public. Fortunately, Section 3 of Attachment E1 allows Enrollees to claim protection from unauthorized disclosure under the Homeland Security Act. The requested language below achieves the same end result, but is more straightforward for Enrollees to interpret.

Since up-to-date maps must be maintained by Enrollees, the information is always available to State Water Board staff at their specific request.

The suggested markup below also strikes the word "all," recognizing that it may be appropriate to omit certain features. At the February 2022 workshops, State Water Board verbally suggested including only major valves, for example. The word "applicable" is suggested for stormwater conveyance facilities, as used in the 2006 Order, since some portions of the stormwater system may have no interaction with the sanitary sewer system.

[Page D-4]

### 4.1. ~~Updated~~ Map of Sanitary Sewer System

An up-to-date map(s) or procedures for maintaining and accessing an up-to-date map(s) of the sanitary sewer system, showing ~~all~~ gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities within the sewer system service area boundaries.

## 7. GPS coordinates for the boundaries of spill spread should not be required (Page E1-4).

GPS points defining the boundaries of spill spread can be collected for some spills, but there are numerous exceptions. Due to access constraints, it is not always feasible in the field to collect GPS coordinates for the boundaries of spill spread because oftentimes a spill can spread overland and form what is described in GPS terms as a multi-point polygon, which for all practical purposes cannot be measured anyway because a spill is a dynamic event subject to random changes in direction and elevation. Furthermore, the term is ambiguous, because the spill may affect several sections of a sanitary sewer system (e.g., a backup out of two manholes from one obstructed pipeline).

There are other examples of situations where it is impractical to capture the boundaries of a spill using GPS coordinates. For example, spills into moving water do not have a defined boundary. Small spill volumes will have a very small spread, and obtaining accurate GPS boundaries will be particularly impractical for these spills. A sketch or photograph would be appropriate for small spills.

It is feasible and appropriate for Enrollees to upload GPS coordinates for key spill features, such as the location of failure points or the location of discharge to surface waters. By contrast, documenting "known spill boundaries" using GPS coordinates is not appropriate as a universal requirement when there are enforcement consequences for non-compliance.

The proposed markup below also removes the word "best," as the term "best available" is not defined in the draft SSS-WDR.

[Page E1-4]

**2.1 Spill Location and Spread**

The Enrollee shall visually assess the spill location(s) and spread using photography, global positioning system (GPS), or ~~and~~ other ~~best~~ available tools. The Enrollee shall document the critical spill locations, including:

- The system location where spill originated;
- ~~Boundaries of~~ Extent of spill spread;
- Drainage conveyance system entry locations;
- The location(s) of discharge into surface waters ~~of the State~~, as applicable; and
- The location(s) of clean up.

[Page E1-7 and E1-11]

**3.1.1. Draft Spill Report for Category 1 and Draft Category 2 Spill *and***

**3.2. Monthly Certified Spill Reporting for Individual Category 3 and Category 4 Spills**

…

3. Location of the spill event including GPS coordinates ~~of known spill boundaries~~:

• If a single overflow event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation field;

[Page E1-8 to E1-9]

**3.1.1. Certified Spill Report for Category 1 and Category 2 Spills**

…

1. Description of the spill event destination(s) including GPS coordinates ~~that represent the full spread of the spill;~~

[Page E1-11]

3**.2 Monthly Certified Spill Reporting for Individual Category 3 and Category 4 Spills**

…

3. Location of the spill event including GPS coordinates ~~of known spill boundaries~~:

**8. The proposed "Receiving Water Field Sampling" should be removed. This testing has a high cost of compliance, and will not aid in enforcement (Page E1-5).**

Attachment E of the draft SSS-WDR requires three types of receiving water monitoring: (1) visual observations in Section 2.3.1, (2) field testing of pH, turbidity, dissolved oxygen, and temperature in Section 2.3.2, and (3) grab samples for laboratory analysis of ammonia and bacteria in Sections 2.3.3 and 2.3.4. The field testing requirement in Section 2.3.2 is new, and should be removed. If implemented, this requirement would result in a significant increase in the cost of compliance due to time and expenses for testing equipment, with no tangible benefits to water quality or to the enforceability of the draft SSS-WDR.

The draft language in Section 2.3.2 of the Order is ill-conceived. The draft SSS-WDR does not establish a timeline for conducting the testing, nor does it suggest a location for conducting the testing (locations are listed in Section 2.3.4, but they only apply to the samples required by Section 2.3.3). Every single Enrollee would need to procure new field testing equipment for pH, turbidity, dissolved oxygen, and temperature, and would need to train their sewer system maintenance staff in the use of this equipment. Turbidity, dissolved oxygen, and pH probes are quite sensitive, and require frequent calibration (for some instruments, a new calibration is required prior to each sampling event). Sewer system maintenance crews are not trained laboratory technicians, and the data collected is unlikely to be reliable even if it is collected with the best of intentions. Calibration of receiving water test equipment could unreasonably delay spill response and cleanup efforts. These factors will significantly increase the cost of compliance for Enrollees for procurement, training, and frequent instrument calibration.

Most significantly, the objectives for the field testing parameters are commonly based on a detected **difference** from background condition – normally established by sampling executed as an ongoing program rather than a one-time event such as a spill. This, in turn, makes the proposed data unusable for enforcement. By contrast, for ammonia and bacteria – the grab sampling parameters required by the 2013 Monitoring and Reporting Program and in the draft SSS-WDR – the water quality objectives are expressed as an absolute number (mg/L or MPN/100 mL). Ammonia and bacteria data are therefore of high value, especially given the relative ease of collecting grab samples in the field, because they can be used to establish whether or not a spill resulted in exceedance of a water quality objective. For pH, dissolved oxygen, temperature, and turbidity, the opposite is true: the objectives are based on a detected difference from background conditions, so the proposed receiving water testing has no practical use. A few examples

of receiving water objectives are shown below from the Basin Plan for San Francisco Bay and from the Thermal Plan:

- **pH.** The pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels. (Basin Plan section 3.3.9)
- **Turbidity.** Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU. (Basin Plan section 3.3.19)
- **Dissolved Oxygen.** Basin Plan section 3.3.5 identifies minimum levels of 5.0 mg/L and 7.0 mg/L for specific tidal waters and non-tidal waters. NPDES permits in Region 2 note that natural factors may cause concentrations lower than those specified above, in which case the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.
- **Temperature.** Objective 2.B for Warm Interstate Waters: Elevated temperature wastes shall not cause the temperature of warm interstate waters to increase by more than 5°F above natural temperature at any time or place. Objective 5.A.1 for Estuaries: (a) The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F. (b) Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point. (c) No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

The properties of untreated sewage are well-established, and enforcement staff can assess the threat to receiving water quality based on such information. Therefore, there is no demonstrated need for receiving water testing results, and it can be removed without jeopardizing the enforceability of the draft SSS-WDR.

Enrollees could elect to conduct receiving water field testing at their own initiative, as the draft SSS-WDR already includes "use of water quality and biological monitoring" as one of the considerations for discretionary enforcement.

The requested removal of Section 2.3.2 in Attachment E1 is shown below. References to receiving water monitoring should also be removed from Table E2-2 and E2-3, since Category 2, 3, and 4 spills do not reach surface waters.

[Page E1-5]

~~**2.3.2. Receiving Water Field Sampling**~~

~~For spills that discharge into a surface water of the State, the Enrollee shall conduct the following field sampling of the receiving water:~~

- ~~pH~~
- ~~Turbidity~~
- ~~Temperature~~
- ~~Dissolved Oxygen~~

~~Monitoring Equipment Calibration~~

~~Field equipment and analytical instruments used to implement the requirements of this General Order must be properly maintained and calibrated. The Enrollee must maintain records~~

~~documenting the maintenance and calibration of equipment and instruments to ensure continued accuracy.~~

The remaining comments are shown are shown in roughly the order they appear in the draft SSS-WDR.

**9. Clarify that the enrollment threshold of one (1) mile of system length applies to an individual public system and is not meant to be a cumulative limit (Page 1).**

The 2006 Order states that "For purposes of this Order, sanitary sewer systems include only those systems owned by public agencies that are comprised of more than one mile of pipes or sewer lines." In contrast, the draft SSS-WDR uses the phrase "one or more sanitary sewer systems with pipelines collectively totaling more than one (1) mile in length." This change in wording could be understood in different ways and interpreted to require enrollment if an agency operates several short systems, none of which total one mile in length. We respectfully request restoring the language of the 2006 SSS-WDR, as shown below.

[Page 1]

> An Enrollee is a public or private entity that has obtained approval for regulatory coverage under this General Order, including:
>
> A federal or state agency, municipality, special district, or other public entity that owns and/or operates one or more sanitary sewer systems greater than ~~with pipelines collectively totaling more than~~ one (1) mile in length;

**10. Improve the description of the application process for New Enrollees (Page 6).**

The phrase "Within 60 days prior to commencing and/or assuming operation and maintenance responsibilities" could be difficult for Enrollees to interpret. The transfer process described for Regulatory Coverage Transfer (Section 2.3, page 7 of the SSS-WDR) requires "at least 60 days" between submitting the application and the effective date of coverage. Presumably, the same 60-day minimum was envisioned for new enrollees.

We respectfully request rephrasing the requirement per the proposed markup below to specify the timing requirement for the enrollment process.

[Page 6]

> **2.2. Requirements for New Regulatory Coverage**
>
> ~~Within 60 days prior to commencing and/or assuming operation and maintenance responsibilities of a sanitary sewer system, a~~ A legally authorized representative that maintains legal authority over the public or private sanitary sewer system is required to enroll as specified below and as provided in the Attachment B (Application for Enrollment Form) of this General Order. The application package must be submitted at least 60 days prior to commencing and/or assuming operation and maintenance responsibilities of a sanitary sewer system under this General Order.

**11. Audits should not need to be submitted to CIWQS (Pages 18, E1-15).**

Audit Reports are a useful tool for improving internal processes, and they are available to Water Board staff upon request. However, they are intended for internal use, and their primary audience is (and should continue to be) sewer system planning, engineering, and operations staff within an agency, not the general public nor the Water Board. Accordingly, in lieu of submitting the audit report to CIWQS where it would be available to the general public, Enrollees could simply certify the audit completion date in CIWQS.

On a related note, it likely will be confusing for audit requirements to be listed twice in two separate places in the document (Section 5.4 of the main body and Section 3.6 of Attachment E). It would be helpful to consolidate all requirements in one place.

[Page 18]

> **5.4. Sewer System Management Plan Audits**
>
> The Enrollee shall conduct an internal program audit at a minimum frequency of once every three years. The audit must be conducted for the period after the end of the Enrollee's last audit period. The audit completion date ~~An audit report~~ must be certified in ~~submitted into~~ the online CIWQS Sanitary Sewer System Database per the requirements in section 3.6. (Sewer System Management Plan Audit Reporting Requirements) of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order.

[Page E1-15]

> **3.6 Sewer System Management Plan Audit Reporting Requirements**
>
> The Enrollee shall certify ~~submit~~ its Sewer System Management Plan Audit completion date (Audit) and other pertinent audit information, in accordance with section 5.4. (Sewer System Management Plan Audits) of this General Order, to the online CIWQS Sanitary Sewer System Database upon completion of the Audit and within ~~by~~ six months after the end of the 3-year audit period.

## 12. Requirements on publicly elected governing entities should be reframed to place the onus on the Enrollee in the draft SSS-WDR (Pages 18 -21)

Several provisions in the draft SSS-WDR place requirements on publicly-elected governing bodies. For example, Sections 5.2, 5.5, and 5.7 place requirements directly on the "Enrollee's governing entity." The draft SSS-WDR should place procedural requirements on the Enrollee or on the Sewer System Management Plan itself. It is not proper to place requirements directly on the governing bodies. An example of acceptable language from the 2006 Order is, "This SSMP must be approved by the Enrollee's governing board at a public meeting." The requested changes are shown below.

There are several unrelated problems with the proposed language in Section 5.7 that are also included in the markup:

- The phrase "Local Resources" incorrectly implies that external or non-local funding cannot be used for compliance with the Order.
- The phrase "full implementation" is redundant, as "implementation" denotes the expectation.
- "Spill repair," and "System operation, maintenance, and repair" are already covered by the Sewer System Management Plan (SSMP). These items need not be listed twice, so the reference to the SSMP was deleted. The markup was adapted from Provision 9 of the 2006 Order.

[Page 18]

**5.2 Sewer System Management Plan Development and Implementation**

**…**

For New Enrollees:

The Sewer System Management Plan must be adopted by the governing entity of a new Enrollee ~~shall adopt its Sewer System Management Plan~~; and

[Page 20]

**5.5. Six-Year Sewer System Management Plan Update**

At a minimum, the Enrollee shall update its Sewer System Management Plan every six (6) years after the date of its last Plan Update due date (for an Enrollee previously regulated by Order 2006-003-DWQ, the six-year period shall commence on the due date of the last Plan Update required under that order). The Updated Sewer System Management Plan must include:

• Findings from the Enrollee's Year 3 and Year 6 local program audits; and

• All sewer system management-related changes.

The updated Plan shall be approved by the Enrollee's governing entity ~~shall approve the updated Plan~~.

[Page 21]

5.7 Allocation of ~~Local~~ Resources

~~The Enrollee's governing entity shall allocate the necessary resources to its sewer system management program for: (1) compliance with this General Order, (2) full implementation of its updated Sewer System Management Plan, (3) system operation, maintenance and repair, and (4) spill responses.~~

The Enrollee shall allocate resources for spill response and the operation, maintenance, and repair of its sanitary sewer system by establishing an adequate measure of revenues and expenditures. These procedures must be in compliance with applicable laws and regulations and comply with generally acceptable accounting practices.

**13. Sewer System Management Plan Update due dates should be based on the last Plan Update, duplicative language regarding Plan contents should be removed, and the Order should establish procedures for dealing with late submittals (Page 20).**

The draft SSS-WDR attempts to establish a six-year due date cycle for Sewer System Management Plans. Unfortunately, by establishing new due dates based on past due dates, the proposed language provides an unintentional six-year extension for agencies that had a Plan Update due – but did not actually complete an Update. The six-year cycle would be more straightforward to implement if it were simply based on the date when the last Plan Update was approved by the governing entity. It would also be very helpful to have CIWQS automatically generate reminders for Enrollees' person of record in CIWQS approximately 6-12 months before the next SSMP due date.

In the markup below, we propose to remove duplicative language regarding audit findings and "sewer system management-related changes." Based on conversations with State Water Board staff, this language may require preparation of an additional document that is separate from the updated SSMP.

Additional documentation should not be required; the updated SSMP alone should be sufficient to fulfill this specification.

For the first SSMP update under the reissued SSS-WDR, a 6- to 10-month extension on the SSMP due date would facilitate alignment of the SSMP and Audit cycles. The 2006 Order (page 16) provided a time schedule of required completion dates for SSMPs, and in many cases the audits and SSMPs are due at the same time (i.e., both due in May or August of the same year). It would be useful for SSMP updates to lag the Audit cycle by approximately 6-10 months so that there is sufficient time to incorporate Audit findings in the SSMP, while avoiding the busy reporting season of February through April when many Annual Reports are due. This proposed one-time delay would sunset after the first SSMP update.

The requested markup is shown below.

[Page 20]

**5.5. Six-Year Sewer System Management Plan Update**

At a minimum, the Enrollee shall update its Sewer System Management Plan every six (6) years after the date of its last Plan Update ~~due date. (~~

For ~~for~~ an Enrollee previously regulated by Order 2006-003-DWQ, the six-year period shall commence on the governing entity approval ~~due~~ date of the last Plan Update required under that order~~)~~. The Updated Sewer System Management Plan must include the elements listed in Attachment D~~:~~

~~• Findings from the Enrollee's Year 3 and Year 6 local program audits; and~~

~~• All sewer system management-related changes.~~

For an Enrollee previously regulated by Order 2006-003-DWQ, the due date for the first Plan Update completed under this Order may be extended by up to 10 months to allow consideration of findings from an Audit completed under this Order.

Additionally, Section 5.5 should exclude requirements that are already found elsewhere regarding audits and the contents of the Sewer System Management Plan. Instead, it should establish what happens if an Enrollee's last Sewer System Management Plan had not been completed on time. The draft SSS-WDR contains instructions regarding audits that are not completed on time, so it would be appreciated if the draft SSS-WDR included similar information regarding Sewer System Management Plan updates.

[Page 20]

**5.5. Six-Year Sewer System Management Plan Update**

…

If a Sewer System Management Plan Update is not completed as required, the Enrollee shall:

• Update the online CIWQS Sanitary Sewer System Database and select the justification for not conducting the Update; and

• Notify its corresponding Regional Water Board (see Attachment G (Regional Water Quality Control Board Contact Information) of the justification for the lapsed requirements.

The Enrollee's reporting of a justification for not conducting a timely Update does not justify non-compliance with this General Order. The Enrollee shall:

• Complete the late Update as required in this General Order; and

• Comply with subsequent Update requirements and due dates.

**14. The Reporting Certification requirements should not require Legally Responsible Officials to certify past reports submitted by others (Page 21).**

The draft SSS-WDR requires Legally Responsible Officials to certify compliance for "**all**" spill reporting as well as "other submitted reports and plans." It is only appropriate for the Legally Responsible Official to certify the actual document being submitted, not other documents that may have been previously submitted by others.

[Page 21]

**5.9. Reporting Certification**

The Legally Responsible Official shall electronically certify, on the Enrollee's behalf, all applications, reports, the Sewer System Management Plan(s) and corresponding updates, and other information submitted electronically into the online CIWQS Sanitary Sewer System Database, as follows:

"I certify under penalty of perjury under the laws of the State of California that the electronically submitted information was prepared under my direction or supervision in compliance with the Statewide Sanitary Sewer Systems Order. Based on my inquiry of the person(s) directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information. ~~Additionally, I certify that: (1) reporting and notification of all sanitary sewer spills and/or discharges, and (2) other submitted reports and plans, comply with the Statewide Sanitary Sewer Systems General Order."~~

**15. Modify the System Capacity language for internal consistency, and to allow for a reasonable approach to capital improvements (Pages 23-24).**

Section 5.10 of the draft SSS-WDR requires Enrollees to provide adequate hydraulic capacity within the permitted system. We request minor changes to the language in this section for internal consistency with other concepts of the draft SSS-WDR. These changes will also facilitate a reasonable approach to capital improvement planning that acknowledges that not all spills are preventable – extreme weather events may still result in capacity-related spills.

The draft SSS-WDR does not define an "appropriate" design storm. Instead, each Enrollee is required to consider "updated" design storm conditions when assessing capacity under Element 8.2 of the SSMP. For consistency with Element 8.2 of Attachment D, a neutral word such as "designated," "updated," or "identified" should be substituted for "appropriate" in Section 5.10.

Section 5.10 should also note that not all spills are preventable, as noted elsewhere in the draft SSS-WDR. For example, Section 3.2.3 of the SSS-WDR states that "Many spills are preventable through proactive attention on sanitary sewer system management." The requested markup is shown below.

[Page 21]

**5.10. System Capacity**

The Enrollee shall maintain the system capacity necessary to convey: (1) base flows during dry weather conditions, and (2) wet weather peak flows consistent with designated ~~per the appropriate~~

design storms. The Enrollee shall implement capital improvements to provide adequate hydraulic capacity to:

• Meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance element of its Sewer System Management Plan; and

• Prevent, to the extent feasible, system capacity-related spills, and adverse impacts to the treatment efficiency of downstream wastewater treatment facilities.

**16. Requirements related to the Electronic Service Area Boundary Map should be edited to reflect typical map file features and to clarify when updates are needed (Pages 23-24).**

The draft SSS-WDR requires Enrollees to submit an electronic service area boundary map in a geospatially-located file format such as a Geographic information System (GIS) file. Items like a scale and orientation (north arrow) are typically not included in this file format, as they would automatically be added by an end user at the State Water Board as part of routine GIS mapping. Similarly, streets and jurisdictional boundaries would typically not be included in this file format. We believe that it would be simplest for State Water Board staff to use the file if it is simply contains the service area boundary information, and nothing else. It is typical practice for GIS users to add on other layers (such as County boundaries) as needed.

To prevent duplicate and conflicting data, the geospatial location of wastewater treatment facilities should be provided directly by permitted wastewater treatment facilities, not by the Enrollees. The reference to "three" formats should also be simplified, as the draft text allows for "Other updated formats." It also would be helpful to include the link to the State Water Board's webpage where WDID numbers for wastewater treatment plants should be included, as some smaller enrollees may not know where to locate this.

Based on feedback from State Water Board staff at the February 2022 workshops, our understanding is that the electronic boundary map is to be updated as part of the Annual Report, if needed. This information should be added to the draft SSS-WDR for clarity.

The requested markups are shown below.

[Pages 23-24]

**5.14. Electronic Sanitary Sewer System Service Area Boundary Map**

Within 12 months of the Effective Date of this General Order for continuing Enrollees, or within 12 months of the Application for Enrollment approval date for new Enrollees, an Enrollee must submit into the online CIWQS Sanitary Sewer System Database an up-to-date electronic spatial map, digitized at a minimum scale of 1:24,000, of the Enrollee's sewer system service area boundaries, for each system identified by a WDID number. An Enrollee of a disadvantaged community that may need assistance developing an electronic map to comply with this requirement, may contact State Water Board staff for assistance at SanitarySewer@waterboards.ca.gov.

~~The map must include the following elements:~~

~~• A scale;~~

~~• A north arrow;~~

~~• Major streets, city and county boundaries, and other landmarks necessary to appropriately identify location of service area boundaries; and~~

~~• Location of wastewater treatment facility(ies) that treats system waste if in same sewer service boundary.~~

The Enrollee shall also provide the WDID of the wastewater treatment facility(ies) that treats system waste, which can be found at this web address: [SWRCB link].

The electronic map must use one of the following ~~three~~ formats:

[Pages E1-13 and E1-14]

**3.4. Annual Report (Previously termed as Collection System Questionnaire in General Order 2006-0003-DWQ)**

…

The Annual Report (an Annual Report update) must address the following items:

• Updated sewer system service area boundaries and system service area (square miles), which shall be submitted per section 5.14 (Electronic Sanitary Sewer System Service Area Boundary Map) if the sewer system service area boundary has changed;

## 17. Maintain discretionary enforcement for factors beyond the reasonable control of Enrollees (Page 27).

The 2006 Order allows the State Water Board or Regional Water Board to consider whether the discharge was "exceptional, unintentional, temporary, and caused by factors beyond the reasonable control of the Enrollee." We respectfully request that the list of acceptable considerations for enforcement continue to reflect the concept that some spills will inevitably occur due to factors beyond the reasonable control of the Enrollee.

**6.1.6. Water Boards' Considerations for Discretionary Enforcement**

Consistent with the State Water Board Enforcement Policy, when considering Water Code section 13327 factors, the State Water Board or a Regional Water Board may consider the Enrollee's efforts to contain, control, clean up, and mitigate spills. In assessing the factors, the State Water Board or the applicable Regional Water Board will consider:

…

• The spill duration and factors beyond the reasonable control of the Enrollee causing the event.

## 18. The Sewer System Management Plan Availability requirements should be clarified for Enrollees (Page 30).

The draft SSS-WDR requires Sewer System Management Plans to be available on an Enrollee's "homepage," which usually means the primary website of an agency (for example, http://waterboards.ca.gov). Large and medium agencies often post their Sewer System Management Plan in a prominent location elsewhere on the website in a location directly related to wastewater operations. Likewise, they commonly are available through the agencies' homepage search tool, plus internet search capabilities have also made these documents easier to locate online than in the past, so we respectfully request the requirement to place it on the "homepage" be modified. We also request additional changes to this section to correct two minor issues:

- The phrase “accessible to the public” may be misconstrued to specifically refer to compliance with the Americans with Disabilities Act. The phrases “available to the public” and “maintained for public inspection” are suggested replacements.

- Specifying that uploading through CIWQS is an acceptable path for making Sewer System Management Plans available to the public, as State Water Board discussed and noted at the February 2022 workshop. Some Enrollees, including very small or private Enrollees, may not have a website.

[Page 30]

**6.4 Sewer System Management Plan Availability**

The Enrollee’s updated Sewer System Management Plan must be maintained for public inspection at the Enrollee’s offices and facilities and must be available to the public through CIWQS or prominently identified on the Enrollee’s internet website ~~homepage~~ ~~in a format accessible to the public~~.

**19. The definition of laterals should be revised to reflect the variability among Enrollees (Page A-2).**

The boundaries between upper and lower laterals vary widely among Enrollees. Some jurisdictions use property lines, some use sidewalk clean-outs, and some use curb lines as the boundary between upper and lower lateral. These also vary when sewer lines are included in easements granted to the Enrollee or have more than a single discharger using the lateral. The proposed markup below is needed to capture the variability in the definitions of upper and lower laterals.

[Page A-2]

**Lateral (including Lower ~~and Lower~~ and Upper Lateral)**

A lateral is an underground segment of pipe that transports sewage from a building or property (residential, commercial, or industrial) to a sanitary sewer system main in a street or easement.

A lower lateral can be defined as ~~is~~ the portion of the lateral located between: (1) the sanitary sewer system main, and (2) either the property line or the boundary of an established easement.

An upper lateral can be defined as ~~is~~ the portion of the lateral from the building or property, to a clean out closest to the property line or boundary of an established easement.

Upper and lower lateral boundary definitions are subject to determination by local jurisdiction codes and ordinances.

**20. Redundant Spill Emergency Response Plan Requirements should be removed (Page D-6) .**

The Spill Emergency Response Plan requires a post-spill assessment of spill response activities, and the Spill Emergency Response Plan would be reviewed as part of a Sewer System Management Plan Update. There is no need for the Spill Emergency Response Plan to be reviewed annually when it already must be reviewed upon the adoption of the draft SSS-WDR, after major spills, and every six years as part of the SSMP update.

The language also suggests edits for clarity, and to align this section with the language in Section 5.11 (which uses the term “prevent/minimize spill volume”).

[Page D-6]

**6. SPILL EMERGENCY RESPONSE PLAN**

The Plan must include a ~~developed~~ Spill Emergency Response Plan to assure immediate detection and response to spills to reduce spill volumes and collect information for prevention of future spills. The Spill Emergency Response Plan must include procedures to:

…

- Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system;

…

- Conduct post-spill assessments of spill response activities;

…

~~• Review and assess the Spill Emergency Response Plan Annually.~~

**21. Requirements found within the Sewer System Management Plan Element 4 (Operation and Maintenance Program) and Element 8 (System Evaluation and Capacity Assurance and Capital Improvements) should be better aligned, and duplicative language removed (Pages D-4 to D-9).**

We appreciate that State Water Board staff have retained the structure of the 2006 Order's SSMP requirements. With the expanded responsibilities for certain elements, we recommend streamlining of some of the new duplicative prioritization requirements in Element 4 and Element 8 of the SSMP. While Element 4.3 contains requirements related to prioritization of capital improvements, Element 8 is a more appropriate location for this information related to capital planning and capacity, given Element 8's particular focus on condition assessment, risk, and prioritization of corrective actions. As for the other portions of Element 4.3, they could be consolidated into the prior provision, and so accordingly, we respectfully request the draft SSS-WDR be revised to remove equivalent requirements in two different locations. One possible solution to address this duplication is shown below (i.e., consolidate requirements in Element 8 to the extent feasible). Another possible solution would be to consolidate requirements related to rehabilitation and replacement in Element 4.

Proposed language is shown below. The overall approach is to :

- Retain the reference to visual and CCTV inspections from Element 4.3 by moving it to Element 4.2.
- Move most other Element 4.3 requirements related to prioritization of capital improvements and interagency coordination to Element 8, where similar requirements are already found. Retain the section requiring coordination, which is necessary to prioritize rehabilitation and replacement projects.
- Remove internally redundant requirements in Element 8 (for example, the introduction includes all of the elements in 8.1, 8.2, 8.3, and 8.4, which is not necessary).
- Remove oddly specific language in Element 8.3 that refers to Infiltration and Inflow, bank erosion, and low-lying pump stations. According to the overall logic of Element 8, Element 8.3 should be a more general reference to identifying corrective actions.

[Pages D-4 to D-5]

**4.2. Preventive Operation and Maintenance Activities**

A scheduling system and a data collection system for routine preventive operation and maintenance activities conducted by staff and contractors. The scheduling system must schedule: (1) routine inspection and maintenance activities, and (2) higher-frequency

inspections and maintenance of known problem areas. The procedures should include regular visual and closed-circuit television (CCTV) inspections of manholes and sewer pipes. The data collection system must document data from routine inspection and maintenance activities, and higher-frequency inspections and maintenance of high-risk infrastructure conditions.

### 4.3. Rehabilitation and Replacement

Procedures for joint coordination between operation and maintenance staff, and engineering staff/consultants to prioritize s~~S~~ewer system rehabilitation and replacement (See also Element 8.3) ~~procedures to prioritize short-term and long-term rehabilitation actions that address deficiencies that pose a high risk of spills. The procedures must include:~~

~~• Regular visual and closed-circuit television (CCTV) inspections of manholes and sewer pipes;~~

~~• A method for prioritizing capital improvements addressing high risk system and deficiencies;~~

~~• Joint coordination between operation and maintenance staff, and engineering staff/consultants during planning, design, and construction of capital improvement projects; and~~

~~• Interagency coordination with other impacted utility agencies.~~

[Pages D-7 to D-9]

## 8. SYSTEM EVALUATION AND CAPACITY ASSURANCE AND CAPITAL IMPROVEMENTS

The Plan must provide procedures and activities for the Enrollee to assess system condition and capacity, and prioritize rehabilitation actions to address:

- Local / regional climate change impacts;
- Environmental impacts;
- Change in waste flow rates and system users;
- Customer use of household and commercial products; and
- Other current and forecasted system-specific impacts that threaten the sewer system.

~~The Sewer System Management Plan must include a system evaluation that includes:~~

~~• Routine evaluation and assessment of system conditions;~~

~~• Capacity assessment and design criteria;~~

~~• Identification of risk and prioritization of corrective actions; and~~

~~• A capital improvement plan.~~

…

### 8.3. Identification of Risk and Prioritization of Corrective Action

The findings of the Preventative Operation and Maintenance Activities (Element 4.2), condition assessments (Element 8.1) and capacity assessments (Element 8.2) must be used to identify and prioritize corrective actions. ~~consider infiltration and inflow, bank erosion (in canyons and along coastal bluffs), and inundation of low-lying pump stations.~~ The prioritization of corrective actions must also consider ~~the ranking and measurement of risk based on~~ the severity of the consequences of potential spills.

**22. The Capital Improvement Plan requirements should be generalized to accommodate the capital planning practices of all Enrollees (Page D-9).**

The information requested in Element 8.4 of the Sewer System Management Plan is unreasonably detailed and creates a prescriptive structure. For example, the Sewer System Management Plan should not need to identify interim milestones for planning and design; doing so implies that an Enrollee must also adhere to these interim milestones, which is not appropriate, especially if/when circumstances arise (e.g., emergencies or identification of higher-priority projects) that would significantly alter milestones and associated capital expenditures. The language in the draft SSS-WDR also ignores that agencies regularly update their Capital Improvement Plans based on condition assessments and operational issues. Meanwhile, Enrollees that are small agencies or small-scale private systems will naturally use a simplified approach to capital planning compared to larger agencies. Suggested simplified language is shown below. The main elements -- scope, schedule, and budget – have been retained but cannot be unyieldingly prescriptive.

[Page D-9]

**8.4. Capital Improvement Plan**

The capital improvement plan must include the following items:

- ~~Project schedules with interim milestones for planning, design, and construction;~~
- Project schedules, including c~~C~~ompletion dates for all portions of the capital improvement program, updated consistent with the Sewer System Management Plan update, and
- Internal and external project funding sources for each project ~~including:~~
  - ~~Local accounts that will provide the necessary local resources,~~
  - ~~Necessary local board or company budget approvals,~~
  - ~~Necessary planning, design and construction staff and contractor, and~~
  - ~~Breakdown of resources allocated to various capital improvement projects.~~

**23. The SSMP Elements should maintain a distinction between the Operation and Maintenance Program (Element 4) and source control programs (Element 7) (Page D-7).**

The original intent of Element VII (FOG Control Program) in the 2006 Order was to address the specific areas where, for some sewer systems, fats, oils, and grease (FOG) can become a significant cause for stoppages but are correctable using accepted Food Service Establishment (FSE) source control measures. The draft SSS-WDR expands this section beyond FOG. While we are not opposed to the addition of rags and debris, root control does not belong in Element 7, as it is already addressed in Element 4. Roots are not controllable through public outreach and/or source control. Residential FOG, non-FSE commercial FOG, and wipes (a form of "rags and debris") are the main elements that would benefit from a public outreach campaign.

In contrast, roots are best addressed by Enrollees through the knowledge of historical records and an effective O&M program (Element 4). Element 4.2 already requires higher-frequency inspections and maintenance of known problem areas, such as areas with root intrusion. The requested markup to retain the distinction between source control (Element 7) and O&M (Element 4) is shown below.

The markup below also allows additional flexibility for Enrollees to develop system-specific control programs, as appropriate, rather than mandating that all Enrollees include all of the suggested items in the list. For example, a small private Enrollee would probably not develop a public education program. This suggested language was copied from the 2006 Order. "All" is removed from the last bullet so that Enrollees have the flexibility to prioritize the most likely sources of FOG in their service area.

Finally, the markup below standardizes references to a "program." It is confusing to refer to "A plan" that is distinct from "The Plan" ("The Plan" means the entire SSMP).

[Page D-7]

**7. SEWER PIPE BLOCKAGE CONTROL PROGRAM**

The Plan must include procedures to evaluate the Enrollee's service area and identify and address system-specific pipe blockages caused by ~~roots,~~ fats, oils, grease, rags, and debris. The ~~procedures must include, at minimum:~~ Plan shall include the following, as appropriate:

• A~~n implementation plan and schedule for~~ a public education and outreach program that promotes proper disposal of pipe-blocking substances;

• ~~A plan and schedule~~ Strategies for the disposal of pipe-blocking substances generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of substances generated within a sanitary sewer system service area;

~~• A plan to identify, document and address system areas/components prone to root-intrusion potentially resulting in system backup, failure and/or exfiltration;~~

• The legal authority to prohibit discharges to the system and identify measures to prevent spills and blockages;

• Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, best management practices requirements, recordkeeping and reporting requirements;

• Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the fats, oils, and grease ordinance;

• An identification of sanitary sewer system sections subject to fats, oils, and grease blockages and establishment of a cleaning schedule for each section; and

• Implementation of source control measures for ~~all~~ sources of fats, oils, and grease reaching the sanitary sewer system for each section identified above.

**24. Requirements related to spill response that are due by the Effective Date of the draft SSS-WDR should be consolidated, and Enrollees should have at least 180 days to comply (Page D-10).**

There are a several sections of the draft SSS-WDR that will require Enrollees to take action in between the adoption date and the effective date of the draft SSS-WDR in order to comply with the new Order. The most significant of these is updating the Spill Emergency Response Plan, which is a requirement within the main body of the draft SSS-WDR (Section 5.12, Page 22) and one of the SSMP elements (Element 6, Attachment D, page D-6). We estimate that a compliance period of at least 180 days will be needed to allow all 1,100+ Enrollees time to complete these necessary updates.

The SSMP Communication Program (Element 11, Attachment D, page D-10) also contains requirements related to spill emergency response that are redundant with those in Element 6. To avoid Enrollees having to update both Element 6 and Element 11 of their SSMPs by the effective date, and to avoid duplicative requirements in general, we request that the spill response protocols be removed from Element 11. The requested markup is shown below. If needed, the deleted text could be adapted and re-inserted in Element 6.

In addition, the reference to "laterals" should be removed, because it unreasonably broadens the scope of the communication program compared to the 2006 Order. The 2006 Order requires communication

with "**systems** that are tributary and/or satellite to the Enrollee's sanitary sewer system." Not all Enrollees have a mechanism for directly contacting individual lateral owners; adding such a requirement would be inappropriate and burdensome. Public outreach related to FOG, rags, and debris is already included in Element 7.

We suggest referencing both owners and operators because, in some cases, systems are operated by a different entity than the owner. The reference to "private and public" should be removed because it does not add any information to the draft SSS-WDR – all systems are either private or public.

[Page D-10]

**11. COMMUNICATION PROGRAM**

The Plan must include procedures for the Enrollee to communicate with:

• The public for:

o Spills and discharges resulting in closures of public areas, or that enter a source of drinking water, and

o The development, implementation, and update of its Plan, including opportunities for public input to Plan implementation and updates.

• Owners/operators of ~~private and public lateral/~~systems that connect into the Enrollee's system, including satellite systems, for system operation, maintenance, and capital improvement-related activities; ~~and~~

~~• Stormwater, drinking water and other utility agencies for collaborative emergency spill response during and after a spill to immediately stop the spill, prevent/minimize a discharge to waters of the State, and clean up spill areas.~~

**25. Receiving Water Visual Observations should only be required for spills greater than 50,000 gallons that enter waters of the State (Page E1-4).**

This edit would make the draft SSS-WDR consistent with the 2013 Monitoring and Reporting Program (Order No. WQ 2013-0058-EXEC).

[Page E1-4]

**2.3.1. Receiving Water Visual Observations**

Through visual observations and use of best available spill volume-estimating techniques and field calculation techniques, the Enrollee shall gather and document the following information for spills greater than 50,000 gallons discharging to surface waters:

**26. The Order should more precisely describe the number of receiving water quality samples to be collected. The timeframe for sampling and analysis should acknowledge the potential for delays due to access and safety constraints (Page E1-5).**

The draft SSS-WDR requires receiving water sampling for bacteria and ammonia at three locations: Upstream (RSW-001U), Downstream (RSW-001D), and at the initial point where sewage enters the receiving water (RSW-001). The description of the number of receiving water samples required to be

collected is vague. The Order refers to three samples, which presumably means to collect one sample at each of the three locations per day.

The 2006 Order provides Enrollees with 48 hours to sample receiving waters, but the draft SSS-WDR reduces this timeframe to just 12 hours. We respectfully request that this timeframe be adjusted to at least 24 hours, which will still be twice as fast as currently required. For some spills – particularly those for which knowledge of the spill occurs in the evening – the 12-hour requirement will be infeasible. Moreover, there are a variety of legitimate safety and access concerns which will prevent Enrollees from complying with the 12-hour timeframe to collect the requested samples. To avoid creating a hazardous condition, the text should acknowledge that field crews do not need to undertake sampling if conditions are unsafe. A safety and access exception is already found in Section 2.4 of Attachment E1, so this edit is merely for clarity.

Additionally, the suggested revisions below also indicates that analysis (as distinct from sample collection) does not need to be completed right away. Only sample collection is required within 12 hours (per the draft) or 24 hours (per the markup).

[Page E1-5]

**2.3.3. Receiving Water – Water Quality Sampling and Analysis**

~~To capture the impact of~~ For sewage spills estimated to be 50,000 gallons or more to a surface water, the Enrollee shall conduct the following receiving water quality sampling ~~and analysis,~~ as soon as possible. Unless safety or access exceptions apply (Section 2.4), sampling shall be conducted ~~, but~~ no later than 24 hours ~~12 hours~~ after the Enrollee's knowledge of potential discharge to a surface water ~~of the United States~~:

- Collect ~~Three~~ receiving water samples, each day of the duration of the spill, per the Water Quality Sampling Specification in section 2.3.4. (Water Quality Sampling Specifications) of this Attachment, ~~and~~ at each of the three receiving water sampling locations in section 2.3.5. (Receiving Water Sampling Locations) of this Attachment;

**27. Drainage Conveyance System sampling point DCS-001 should be removed from the draft SSS-WDR. It appears to have been included in error (Page E1-6).**

Attachment E identifies sampling location DCS-001 to represent sampling of drainage conveyance system flow. However, the text of the order does not call out sampling this location. The water quality of sewage is well-established, and no justification for sampling is provided. The sampling location may have been included in error.

[Page E1-6]

~~**Sampling of Drainage Conveyance System (DCS) Flow**~~

| ~~**Sampling Location**~~ | ~~**Sampling Location Description**~~ |
|---|---|
| ~~DCS-001~~ | ~~A point where a representative sample of the drainage water in adrainage conveyance system, before the drainage conveyance system flow discharges into a receiving water.~~ |

**28. Extraneous requirements for Category 3 and Category 4 spill report should be removed (Page E1-11).**

The requirements for Category 3 and 4 spill reports should not be identical to the Category 1 and 2 spill reports. For example, there will not be a need to identify the impacted water body(s) since Category 3 and 4 spills do not reach surface waters.

[Page E1-11]

**3.2. Monthly Certified Spill Reporting for Individual Category 3 and Category 4 Spills**

…

~~5. Did the spill directly or indirectly (via a drainage conveyance system) discharge into a water of the State?~~

…

~~8. Estimate of the spill volume that discharged to waters of the State, and spill volume not recovered from a drainage conveyance system;~~

…

~~23. Name and type of water body(s) impacted; and~~

~~24. If discharged to a surface water, visual inspection of water body, narrative description, and photographs of impacted water body(s).~~

**29. Except for voluntary notification of privately-owned spills, all notifications should occur through the Office of Emergency Services. Erroneous references to notifying the State Water Board through an online CIWQS Sanitary Sewer System Database should be removed (Pages E2-1, E2-2).**

The spill reporting notification requirements shown in Table E2-1 and E2-2 erroneously refer to notification to the State Water Board through an online CIWQS Sanitary Sewer System Database. State Water Board staff confirmed at the February 2022 workshops that these references are erroneous, as no such requirement is listed within the earlier sections of the draft SSS-WDR. Section 1.1 of Attachment E1 requires 2-hour notification to the California Office of Emergency Services.

[Pages E2-1 and E2-2]

**Table E2-1**

| Spill Requirement | Due | Method |
|---|---|---|
| Notification | …<br>• For Category 1 spills of 1,000 gallons or greater, notify California Office of Emergency Services and obtain a notification control number~~; and~~<br>• ~~For all Category 1 spills, notify the State Water Board through the online CIWQS Sanitary Sewer System Database.~~ | ~~2. https://ciwqs.waterboards.ca.gov~~ (Section 1 of Attachment E1) |

**Table E2-2**

| Spill Requirements | Due | Method |
|---|---|---|
| Notification | …<br>• ~~Notify the State Water Board through the online CIWQS Sanitary Sewer System Database.~~ | ~~2. https://ciwqs.waterboards.ca.gov (Section 1 of Attachment E1)~~ |

| | | |
|---|---|---|
| | | Not applicable |

**30. Maintain the General Order as a WDR rather than changing it to an NPDES permit.**

We are aware that some stakeholders have advocated refashioning the SSS-WDR into an NPDES permit. While we are confident that the State Water Board has committed to moving forward with the SSS-WDR as Waste Discharge Requirements, we note that a shift to an NPDES model would require a complete re-drafting and re-framing of its requirements due to how the provisions would become enforceable by third parties. This would take significant time, effort, and resources from both the Water Boards and stakeholders. As such, we concur with the overall approach used in the draft SSS-WDR to regulate sanitary sewer systems using Waste Discharge Requirements rather than an NPDES permit. Sanitary sewer systems in California should continue to be regulated using the State Water Board's authority under the Porter-Cologne Water Quality Control Act, so no change to the draft SSS-WDR is requested.

## 31. Correct Minor and Typographical Errors

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| 1 | Table 1 | A sanitary sewer system is a system that is designed to convey sewage, including but not limited to, pipes, manholes, pump stations, **syphons**, wet wells, | A sanitary sewer system is a system that is designed to convey sewage, including but not limited to, pipes, manholes, pump stations, **siphons**, wet wells, | Use the spelling of "siphons" as used in other parts of WDR. |
| 5 | 1. | Sewage spilled from a sanitary sewer system **threatens** public health, beneficial uses of waters of the State, and the environment. | Sewage spilled from a sanitary sewer system **may threaten** public health, beneficial uses of waters of the State, and the environment. | This change will mirror the conditional language in the 2006 Order (page 1, paragraph 2). A small volume of sewage spilled or one that is cleanup up or one that is intercepted (that does not reach surface waters) is not a threat. |
| 8 | 3.1.2 | A discharge of **raw** or partially treated sewage | A discharge of **untreated** or partially treated sewage | As listed in the definitions, "Sewage is **untreated** or partially treated domestic, municipal, commercial and/or industrial waste (including sewage sludge) conveyed in a sanitary sewer system." The word "raw" is not used anywhere else in the order. |
| 11 | 3.2.2 | Inadvertently **generate** trash, including plastics; | Inadvertently **release** trash, including plastics; | Spills do not generate trash. They may release trash that is already present within the sanitary sewer system. |
| 13 | 3.2.3 | Finding 3 of the previous Order, 2006-0003-DWQ states:<br><br>"…discharges that may **impact** waters of the State…<br><br>the likelihood of an SSO [**sewer system** overflows]…" | Finding 3 of the previous Order, 2006-0003-DWQ states:<br><br>"…discharges that may **affect** waters of the State…<br><br>the likelihood of an SSO [**sanitary sewer** overflow~~s~~]…." | This section is structured as a quotation from the 2006 Order, but two of the excerpts are not direct quotations from the 2006 Order. The proposed correction corrects the misquotations. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| 14 | 3.2.3 | Community **impacts**, including but not limited to:<br>- Power outages;<br>- Vandalism; and<br>- Contractor-caused or other third party-caused damages. | Community-**based causes**, including but not limited to:<br>- Power outages;<br>- Vandalism; and<br>- Contractor-caused or other third party-caused damages. | Power outages, vandalism, and third-party damages are potential **causes** of spills, not impacts. |
| 14 | 3.2.4 | **Not all, yet many** sanitary sewer systems leak, causing underground exfiltration (exiting) of sewage from the system. | **Portions of some** sanitary sewer systems **may** leak, causing underground exfiltration (exiting) of sewage from the system. | The wording in the draft SSS-WDR is awkward and potentially misleading. It is currently not known whether exfiltration is common or rare around the State. Also, if and when sanitary sewer systems leak, only a portion of the system would be leaking. |
| 14 | 3.2.5 | rainfall-**induced** infiltration | rainfall-**dependent inflow and** infiltration | The phrase used by sanitary sewer agencies is "rainfall-dependent inflow and infiltration," rather than "rainfall-induced infiltration." The meaning is the same, but it would be more accurate to use the industry term. |
| 18 | 5.3 | The Legally Responsible Official shall upload its Sewer System Management Plan and subsequent updated Plans in the online CIWQS Sanitary Sewer System Database. | The Legally Responsible Official shall upload **or provide an electronic link to** its Sewer System Management Plan and subsequent updated Plans in the online CIWQS Sanitary Sewer System Database. | CIWQS has a file size limit for upload. State Water Board staff noted at the public workshops held in February 2022 that providing a link is an acceptable alternative. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| 20 | 5.5 | Findings from the Enrollee's **Year 3 and Year 6 local program audits**; and | Findings from the Enrollee's -**prior two SSMP Audits**; and | Audits are not necessarily lined up within the SSMP cycle, so the terms "Year 3" and "Year 6" are ambiguous and potentially confusing. The so-called "Year 3" audit may be conducted 2 years after an updated SSMP is issued, for example. Also, it would be internally consistent to use SSMP Audit rather than "local program audit."<br>This deletion is also noted in Comment # 13 of this attachment. |
| 20 | 5.5 | During the time period in between Plan updates, the Enrollee shall **continuously** document changes to its Sewer System Management Plan in a change log **attached to the Plan**. | During the time period in between Plan updates, the Enrollee shall document **significant** changes to its Sewer System Management Plan in a change log **created per Attachment D, Element 9 (Monitoring, Measurement and Program Modifications).** | This change will ensure the language in the draft SSS-WDR mirrors the 2006 Order, which calls for documenting "significant program changes" (Page 15, paragraph 14). The requirement to continuously document changes implies SSMP changes are made on a frequent and regular basis, while most SSMP changes are made infrequently -- typically after an SSMP Audit or just prior to the SSMP Update. Although less significant changes could occur more frequently (e.g., changes to a phone number or one staff member), documenting every minute change would not be constructive. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| 22 | 5.11 | The Enrollee **shall** generate the graph in CIWQS, | The Enrollee **may** generate the graph in CIWQS, | The Legally Responsible Official should not be legally required to certify output from CIWQS, as the internal workings of the system are not under the control of the Legally Responsible Official. While using CIWQS is a much-appreciated option, the Enrollee should also have the option of generating their own graph, if desired. |
| 22 | 5.12 | **Disinfecting** publicly accessible areas while preventing toxic discharges to waters of the State. | **Cleaning** publicly accessible areas while preventing toxic discharges to waters of the State. | Some Regional Water Boards do not allow use of disinfecting chemicals due to the risk of impacting waterways. Typical practice is to wash down the affected areas with potable water, which may have been what was meant by "disinfection." A more generic word such as "cleaning" would be more appropriate. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| 27 | 6.1.5 | In the event that a spill enters into a drainage conveyance system, the Enrollee shall take all feasible steps to prevent discharge of sewage **entering into** drainage conveyance systems (including flood control channels or structures) to waters of the State by blocking the drainage conveyance system, removing the sewage from the drainage conveyance system, and **sanitizing** the system in a manner that does not inadvertently impact beneficial uses in the downstream receiving water body. | In the event that a spill enters into a drainage conveyance system, the Enrollee shall take all feasible steps to prevent discharge of sewage **from that** drainage conveyance systems (including flood control channels or structures) to waters of the State by **implementing the Spill Emergency Response Plan in the SSMP,** blocking the drainage conveyance system, removing the sewage from the drainage conveyance system, and **cleaning** the system in a manner that does not inadvertently impact beneficial uses in the downstream receiving water body. | This section requires the Enrollee to block the drainage conveyance system to prevent the spill from entering the receiving water body but does not require any coordination with the municipal stormwater agency regarding how to block the drainage conveyance system to prevent other unintended consequences, such as flooding, that could result from a blockage of the system. Element 6 of the SSMP requires a Spill Emergency Response Plan, which includes pre-planned coordination and collaboration with storm drain agencies. In recognition of these overlapping requirements, an express reference to the Spill Emergency Response Plan would be useful in this section.<br><br>Consistent with the previous comment in this table, “sanitizing” implies the use of disinfecting chemicals. The word “cleaning” is preferable. The suggested change from “entering into that drainage conveyance system” to “from that drainage conveyance system” is for clarity. |
| 27 | 6.1.5 | …impact beneficial uses in the **downstream** receiving water body | …impact beneficial uses in the receiving water body **to which the drainage conveyance system discharges** | The draft SSS-WDR could be mis-interpreted. The proposed edit clarifies that the drainage conveyance system is not an upstream receiving water body. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| D-5 | 4.3 | A method for prioritizing capital improvements addressing high risk system ~~and~~ deficiencies; | Remove "~~and~~" | Typographical error |
| E1-11 | 3.1.4 | **3.1.4. Amended Certified Spill Reports for Individual Category 1 and Category 2 Spills**<br>The Enrollee shall update or add additional information to a certified Spill Report within 90 calendar days of the spill end date by amending the report or by adding an attachment to the Spill Report in the online CIWQS Sanitary Sewer System Database. The Enrollee shall certify the amended report.<br><br>After 90 days, the Enrollee shall contact the State Water Board at SanitarySewer@waterboards.ca.gov to request to amend a Spill Report. The Legally Responsible Official shall submit justification for why the additional information was not reported within the Amended Spill Report due date. | None | Section 3.1.4 is redundant and should be removed. Identical language applying to all spill reports (not just Category 1 and 2 spill reports) is already found in Section 3.4 of Attachment E. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| E1-14 | 3.5 | • Number of **upper and lower service** laterals connected to system,<br><br>• Estimated number of upper and lower laterals owned and/or operated/maintained by the Enrollee,<br><br>• Portion of laterals that is Enrollee's responsibility, | • Number of ~~**upper and lower service**~~ laterals connected to system,<br><br>• Estimated number of upper and **/or** lower laterals owned and/or operated/maintained by the Enrollee,<br><br>• Portion of laterals that is Enrollee's responsibility, | When counting the number of laterals **connected** to the system, there is no need to differentiate between upper and lower laterals. There is just one connection point for each lateral. If the Enrollee owns a portion of the lateral (i.e., that portion lying in the public-right-of-way), then some laterals can be identified as consisting of an upper and lower lateral. |
| E1-16 | 3.6 | Notify its corresponding Regional Water Board **(see Attachment F (Criteria for Equivalent Collection System Operator Certification Program))** of the justification for the lapsed requirements. | Notify its corresponding Regional Water Board **(see Attachment G - Regional Water Quality Control Board Contact Information)** of the justification for the lapsed requirements. | The wrong attachment is cited. Attachment G, not Attachment F, contains the contact information for Regional Water Quality Control Boards. |
| 11, 21 | 3.1.6, 5.7 | "full compliance"<br>"full implementation" | "~~**full**~~ compliance"<br>"~~**full**~~ implementation" | For the purposes of enforcement, these terms are redundant. "Compliance" is the same as "full compliance." "Implementation" is the same as "full implementation."<br><br>The phrase "full implementation" in Section 5.7 may have been intended to imply that the governing entity shall allocate resources for long-range elements identified in the SSMP. However, a governing entity cannot allocate funds or make commitments beyond their normal fiscal cycle. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| D-2 | All | Sewer System Management Plan (Plan) | Sewer System Management Plan ~~(Plan)~~ (SSMP) | Maintain consistency with body of WDR or use "SSMP "throughout. Use of the phrase "The Plan" is confusing because it is generic and there are so many other Plans associated with the SSMP and cited in the WDR. There are over 50 places where the entire phrase "Sewer System Management Plan" could be replaced by "SSMP". |
| D-2 | 1.2 | The Plan Introduction section must include a schedule for the Enrollee to update the Plan, including the schedule for conducting local audits. The schedule must include milestones for incorporation of activities addressing prevention of sewer spills. | The Plan Introduction section must include a schedule for the Enrollee to update the Plan, including the schedule for conducting local audits. ~~The schedule must include milestones for incorporation of activities addressing prevention of sewer spills.~~ | It is unclear what is meant by "Activities addressing prevention of sewer spills." The audit and SSMP update schedules should be sufficient for this section. Additionally, it would be impossible to know in advance what activities/measures will be recommended in the Audit, or to know what timeframe they can be incorporated into the SSMP. |
| D-3 | 2 | The name of the Legally Responsible Official | The name of the Legally Responsible Official(s) | Some agencies will have more than one Legally Responsible Official. |
| D-3 | 2 | Chain of communication for reporting spills from receipt of complaint or other information, including the person responsible for reporting spills to the State and Regional Water Boards and other agencies, as applicable. (For example, county health officer, county environmental health agency, and State Office of Emergency Services.) | None, delete in its entirety | This information is already required in the Spill Emergency Response Plan (Element 6 of the SSMP) and should not be included twice. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| D-3 | 2 | …the local Sewer System Management Plan …. | … the ~~local~~ Sewer System Management Plan… | Delete "local," as the SSMP is for the Enrollee's specific sewer system. |
| D-2, D-5 | Intro | "Updated operations" (D-2)<br>"Updated Training" (D-2)<br>"Updated Map" (D-4)<br>"Updated Design and Construction Standards" (D-5) | "~~Updated~~ operations" (D-2)<br>"~~Updated~~ Training" (D-2)<br>"~~Updated~~ Map" (D-4)<br>"~~Updated~~ Design and Construction Standards" (D-5) | The adjective "updated" is superfluous. Agencies will submit what they are currently using, which is the updated version. All of the elements of the SSMP must be updated on the 6-year cycle, not just those labeled "Updated." |
| E1-2 | 1.1 | • The Enrollee has knowledge of the spill; and<br>• Notification can be provided without substantially impeding cleanup or other emergency measures. | **• Notification is possible;**<br>• The Enrollee has knowledge of the spill; and<br>• Notification can be provided without substantially impeding cleanup or other emergency measures. | Please restore the language from the 2013 Monitoring and Reporting Program stating that notification to OES is only required if notification is possible. |
| E1-3 | 1.2 | • Estimated spill rate from the system (gallons per minute);<br>• Estimated discharge rate (gallons per minute) directly into waters of the State or indirectly into a drainage conveyance system; | • **If ongoing,** estimated spill rate from the system (gallons per minute);<br>• **If ongoing,** estimated discharge rate (gallons per minute) directly into waters of the State or indirectly into a drainage conveyance system; | The spill rate would only available if the spill is still ongoing at the time that OES was notified. |
| E1-3 | 1.2 | Description of water body impact and/ or potential impact to beneficial uses | Description of water body impact ~~and/ or potential impact to beneficial uses~~ | This information is not in the 2013 Monitoring and Reporting Program, and should be removed because it is redundant with the other information being provided. It is also unreasonable to expect collection system workers to classify beneficial uses. |
| E1-6 | 2.3.4 | **Sampling** analysis must be conducted… | **Sample** analysis must be conducted… | Typographical error |
| E1-8, E1-11 | 3.1.1, 4. & 3.2, 4. | "The total spill volume fully recovered" | "The total spill volume ~~fully~~ recovered" | Fully recovered is redundant with recovered, as used in this section. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| E1-12 | 3.2, 14. | All information provided in Draft Category 1 Spill Report, with verification, or necessary modification based on subsequently acquired information after submittal of draft report; | None, delete in its entirety | This is a typographical error. There are no draft Category 1 spill reports for Category 3 and 4 spills. |
| E1-14 | 3.5 | The Enrollee's Legally Responsible Official must shall… | The Enrollee's Legally Responsible Official ~~must~~ shall… | Redundant |
| E1-15 | 3.5 | Actions taken to address system deficiencies | ~~Actions taken to address system deficiencies.~~ | This type of narrative information belongs in the audit, not in the annual report. The Annual Report should be kept as simple as possible. |
| E1-16 | 4.3 | "Spill **Reports**" | "Spill **Records**" | This section describes records, not spill reports. |
| E1-16 | 4.3 | "Spill event **complaint**" … "**complainant**" | "Spill event **notification**"… **notifier** | Use neutral terminology |
| E1-17 | 4.6 | **4.6. Sewer System Management Plan Implementation Records** The Enrollee shall maintain records documenting the Enrollee's implementation of its Sewer System Management Plan, including documents supporting its Sewer System Management Plan audits, corrections, modifications and updates to the Sewer System Management Plan. | **4.6. Sewer System Management Plan Implementation Records** The Enrollee shall maintain records documenting the Enrollee's implementation of its Sewer System Management Plan, including ~~documents supporting its Sewer System Management Plan audits,~~ corrections, modifications and updates to the Sewer System Management Plan | Audit records are addressed in Section 4.7, which immediately follows. The audit record retention requirements should not be listed twice. |
| E1-17 | 4.7 | The Enrollee shall maintain, at minimum, the following records pertaining to its Sewer System Management Plan audits, and other local sewer system program audits: | The Enrollee shall maintain, at minimum, the following records pertaining to its Sewer System Management Plan audits, ~~and other local sewer system program audits:~~ | It is unclear what other audits are being referenced. |

| Page No. | Section No. | Current Draft Language | Proposed language | Rationale |
|---|---|---|---|---|
| F-1 | 5. | "…to all candidates" | "…**for** all candidates" | Typographical error |

# Executive Board Special Meeting
# DRAFT Agenda

SF Bay Regional Water Board /
BACWA Executive Board Joint Meeting
Friday, April 29, 2022, 2 – 4 pm
[Insert Zoom Link]

**ROLL CALL AND INTRODUCTIONS** – 2 p.m.

**PUBLIC COMMENT** – 2:03 p.m.

**DISCUSSION/OTHER BUSINESS**- 2:05 p.m.

| Topic | Goal | Time |
|---|---|---|
| **1. Agency Updates** | • Roundtable from BACWA and Regulators about COVID-19 impacts, staffing, and other updates | 2:05 |
| **3. Biosolids** | • Potential modifications to permitting approach for land application and land disposal in Region 2<br>• Implementation of recommendations from Biosolids in the Baylands white paper | 2:25 |
| **5. Nutrients** | • Update on planning for 3rd Watershed Permit – schedule load cap calculations and compliance workshop | 2:40 |
| **4. Air permitting** | • Discussion on the Water Board's role in working with BAAQMD to balance air and water requirements | 3:05 |
| **5. Basin Plan amendment on Climate Change and Aquatic Habitat Protection** | • Wastewater discharge permitting considerations for Basin Plan amendment on Climate Change and Aquatic Habitat Protection | 3:20 |
| **7. Miscellaneous Coordination** | • PFAS Regional Study and statewide initiatives<br>• Comments on public draft SSS-WDR<br>• Mercury and PCBs Watershed Permit<br>• Toxicity implementation language<br>• Diversity, Equity, and Inclusion initiatives<br>• State arrearages and federal LIHWAP programs<br>• Chlorine Basin Plan Amendment | 3:30 |
| **9. Annual Events** | • BACWA Annual Meeting – May 6<br>• Pardee Technical Seminar – Sept 9 | 3:55 |

**ADJOURNMENT**

# BACWA - BAAQMD Reg 2 Implementation Workgroup
# Meeting Minutes

**Date:** March 30, 2022

**Time:** 3 – 4 PM

**Location:** MS Teams

**Attendees:** Greg Nudd, Damian Breen, Victor Douglas, Carol Allen, Pamela Leong, and Sanjeev Kamboj (BAAQMD); Lorien Fono (BACWA ED); Amit Mutsuddy and Jason Nettleton (San Jose); Lori Schectel (Central San); Chris Dembiczak (EBMUD); Nohemy Revilla (SFPUC); Bill Johnson (RWQCB); Courtney Mizutani (Mizutani Environmental); Sarah Deslauriers (Carollo)

Notes provided below are based on the discussion by agenda item.

1) **Introductions and Workgroup Objective**

The following draft objective was introduced to BAAQMD for feedback. There was agreement across the group.

*Forum to facilitate a collaborative relationship to further our common goals related to:*

- *Permit process*
- *Inspections*
- *Rule development*
- *Standard permit conditions*
- *Best available control technologies*
- *Balancing competing regulatory priorities*

The Regional Water Board representative provided an introduction and shared about their working relationship with BACWA and processes developed as a result.

BAAQMD expressed support for developing a collaborative approach to working together, with the common goals of protecting public health and the environment.

2) **Overview of Amended BAAQMD Regulation 2 (Permits)**

BACWA provided a high-level overview of Regulation 2 updates, pointing to the adopted definition of "essential public services" to get BAAQMD feedback on a letter submitted following the December 15th Public Hearing. BACWA expressed concern about the definition being inconsistent across BAAQMD regulations and not accurately representing the services listed (which are emergency vs essential public services), and the precedent being set that might cause confusion in future rule development. BAAQMD stated, while the regulation updates are closed, when the next opening or need for changes arises, BAAQMD is open to discussing modifying the definition.

BACWA also requested that BAAQMD provide the basis for stating POTWs were a major source of risk during the December 15th workshop. The statement was based on preliminary estimations performed for Rule 11-18, which are being updated to reflect today's data.

BACWA introduced CARB's statewide two-step process to develop more accurate air emission factors and estimates from POTWs (under the Criteria and Air Toxics Reporting, CTR, Regulation). BAAQMD recognizes the value of an accurate emissions inventory, but also needs

to keep their Board informed considering Rule 11-18 expectations. BAAQMD staff are invited to participate in the two-step process and development of sampling and analysis protocols.

3) **Wastewater Sector Considerations -** *Permitting Process Considerations*
Facility ATCs submitted jumped from 10,000 to 12,000 applications with no increase in BAAQMD staff. Limited staffing combined with increased regulatory demands is impacting permit processing times. BACWA can support BAAQMD by advocating for more staff directly to Board members and during the budget cycle with the Budget and Finance Committee. The next Committee meeting is April 27th (and fourth Wednesday of each month going forward).

BAAQMD requested holding a project meeting early in the process with permitting staff to outline the project - BAAQMD would like the design and specifications to be final before submitting an ATC, noting that any project changes require the permit process to restart. This can be a challenge for POTWs who must comply with the Public Contracting Code and cannot specify or anticipate which equipment the contractor will submit. Final equipment specifications are not necessarily available until after final bids are received, but applicants (POTWs) need to have the ATC in hand before ordering expensive equipment, which complicates the project process. BACWA will resend the summary of a typical project timeline (that aligns with the Public Contracting Code) and how the permitting process fits within it.

To help facilitate a streamlined permit process, BACWA would like to support the development/ editing of standard permit conditions. This will also aid in the POTW planning and design process, by helping manage expectations regarding permit conditions and which may impact design or could impact the ability to comply.

BAAQMD suggested a possible approach, "over-requesting" equipment to reflect the maximum emissions possible – the HRA can be run on that basis to begin the process. In other words, the initial ATC application could be based on conditions that would lead to maximum emissions then refined, noting that BAAQMD acknowledged it is easier to adjust equipment size and permit limits downward (especially if demonstrated to be a permittable project at higher emissions).

BACWA discussed the impact of applying newly adopted BACT to permits considered complete on project planning and implementation. Considering POTWs must comply with contracting code and that process is lengthy and involves a public process with elected officials, the sector is unable to "pivot" quickly when regulatory requirements change unexpectedly. This sudden pivot must be coordinated with regulations imposed by other agencies to which POTWs must also comply. We need to review the POTW planning and BAAQMD permit processes to avoid project rework as much as possible while remaining in compliance.

4) **Workgroup Details & Logistics**
The Workgroup decided standing quarterly two-hour meetings will be scheduled. Sanjeev will be the point of contact for BAAQMD. BACWA will draft meeting notes for review/comment by BAAQMD. Semi-annual reports will be made to the Stationary Source Committee (one in 2022, and two per year thereafter) – making it an agenda item, allowing Committee members to ask questions.

5) **Action Items**

a. BACWA to coordinate with BAAQMD (Sanjeev) to schedule quarterly 2-hour meetings for the next 12 months.

b. BACWA to provide the summary of the POTW planning/design/construction process.

c. Sarah to provide BAAQMD the summary of the statewide Two-Step Process.

**San Francisco Bay Nutrient Management Strategy (NMS)**
**Modeling Advisory Group (MAG) Meeting**
March 29-30, 2022

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Meeting Location: Remote (see dial in information at the end of the agenda)

Meeting Goals:

1. Onboard the MAG and discuss the context and key information needs that should be generated by the review
2. Provide SFEI team feedback on the performance criteria for model applications and linkage to model validation approaches, metrics and statistics
3. Provide preliminary feedback on the status of model validation and identify additional information suggested for in-depth review of validation (focus of meeting 2).

Meeting Materials:

Please see the read-me for a brief description of the reading materials and their relevance to specific agenda items.

- Priority Reading can be found here
- Optional Reading can be found here

## AGENDA

**March 29, 2022 Day 1 (pacific time)**

8:00 am **Item 1 Welcome, introductions and goals and overview of charge questions for the meeting** (Martha Sutula, SCCWRP, MAG Chair)

8:30 am **Item 2 Overview of NMS Science Program and Intended Applications for Model**

- SFEI Overview…draft slides Mar29_Item2_share
- San Francisco Water Board Needs/Concerns for Modeling Program
- Bay Area Water Quality Agency Needs/Concerns for Modeling Program
- Facilitated Discussion (all)

***Intended outcome:*** MAG understands the context and the key information needs that should be generated from the review

***Priority Reading Materials:***

- 2019_NMS_Modeling_5yr_Workplan_March2019v2
- 2014_ModelingApproach_Jan2014
- (optional) 2014_ScientificFoundation_SFB_NMS
  - This report provides technical background / lit-review /conceptual models for SFB nutrient loads & cycling, phytoplankton production, physics, etc. It's a lengthy document, so we're calling it optional here. But could be a helpful resource for info on system behavior.
- (optional) Overview_NMS_SciencePlan2.0

10:30 am Break

11:00 am **Item 3 Background on modeling approach and performance criteria/validation metrics**

Charge Question #1: Comment on the appropriateness of the model development, performance criteria and validation metrics vis-à-vis prioritized applications.

SFEI: Summary of modeling approach, status, performance criteria vis a vis intended applications Mar29_Item3_share

- Facilitated discussion

***Intended outcome:*** MAG has a basic understanding of the model development, current capabilities, key indicators, spatial and temporal gradients of interest for validation studies and provides initial feedback on gaps or additional information needed.

***Prioritized Reading Materials:***

- 2020_NMS_ModelingUpdate_Aug2020

1:15 pm Wrap up and preview of Day 2 agenda

1:30 pm Adjourn

**March 30, 2022 Day 2 (pacific time)**

8:00 am **Item 1 Summary of previous day and goals for Day 2** (Sutula, SCCWRP)

8:15 am **Item 2** Progress on model validation…draft presentation

*Charge Question 2: Comment on status of model validation vis-a-vis model performance criteria for intended applications. Identify additional validation metrics needed to further inform evaluation of model performance.*

*Intended outcome: MAG has a good understanding of how model performance criteria and metrics have been used in a skill assessment.*

- SFEI- Summary of model validation approach and findings
- Facilitated Discussion

***Prioritized Reading Materials:***

- 2019_NMS_Modeling_5yr_Workplan_March2019v2
- 2020_NMS_ModelingUpdate_Aug2020
- 2014_ModelingApproach_Jan2014

10:30 am Break

11:00 am **Item 3:** Closed Session (SFEI staff present if requested)

In-depth discussion of first two charge questions: Comment on the appropriateness of model performance criteria and validation metrics; provide preliminary feedback on model validation vis-a-vis model performance criteria and validation metrics. Identify information needed to further improve model evaluation. Development of oral presentation materials for preliminary feedback.

***Prioritized Reading Materials:***

- 2019_NMS_Modeling_5yr_Workplan_March2019v2
- 2020_NMS_ModelingUpdate_Aug2020
- 2014_ModelingApproach_Jan2014

1:00 pm **Item 4:** Preliminary report out, wrap up and next steps

Intended outcome: MAG provides a summary of initial (oral) feedback and direction on performance criteria and validation metrics, progress on validation, sensitivity analyses, additional info needed to evaluate model performance

2:00 Adjourn

TELECONFERENCING INFORMATION

Join the meeting: https://zoom.us/my/sfeiconfcw1

One tap mobile: +16699006833,,7699356044#

To dial in by phone: 1-669-900-6833; Meeting ID: 769-935-6044

**AGENDA**

**BACWA Nutrient Strategy Team Meeting**

April 21, 2022

12:30 – 2:30 pm

1. Introductions

2. Overview of baseline and planning level targets (BACWA)
    a) 2nd Watershed Permit
    b) Goals of baseline re-evaluation
    c) HDR Scope of Work

3. Review of memo (HDR)

4. Results from Upper Tolerance Limit (UTL) calculations
    a) Use of dry season average (9 data points) or monthly data (45 data points)
    b) Period of record

5. Implementation
    a) Role of buffer for growth
    b) Compliance calculations based on 3-yr average

6. How to evaluate whole bay load cap?
    a) UTL of aggregate data, or sum of individual agency UTLs

7. Next steps
    a) Next NST Meeting
    b) Meeting with Water Board on 4/29
    c) Workshop with Water Board – late spring/early summer?

8. Adjourn

# Study of Per- and Polyfluoroalkyl Substances in Bay Area POTWs: Phase 2

# Sampling and Analysis Plan

Diana Lin and Miguel Mendez

San Francisco Estuary Institute
4911 Central Avenue
Richmond, CA 94804

# Table of Contents

# 1. Introduction

This Sampling and Analysis Plan (SAP) details the plan associated with the Per- and Polyfluoroalkyl Substances Monitoring for San Francisco Bay Area Publicly-Owned Treatment Works, Phase 2: Investigation of PFAS Sources in Sewershed to Inform PFAS Management. This study was developed to investigate per- and polyfluoroalkyl substances (PFAS) in matrices from Bay Area publicly-owned treatment works (POTWs) to inform the monitoring strategy and program decisions for the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) and address monitoring needs for the State Water Board. The study is a two-part study, and this plan details the tasks associated with Phase 2 of the study. Phase 1 analysis was completed in 2021 and informed the study design of Phase 2.

In the Phase 1 study, wastewater influent, effluent, and biosolids were collected from sixteen treatment facilities within the San Francisco Bay Region to assess the presence of per- and polyfluoroalkyl substances (PFAS). The POTWs included in Phase 1 were carefully selected to be representative of various characteristics of Bay POTWs, providing a representative sample set to analyze the range of PFAS concentrations in wastewater matrices and evaluate various characteristics that may influence PFAS concentration that could be later investigated. Samples were analyzed by LC-MS/MS and 40 PFAS analytes were quantified by isotope dilution/internal standard quantification methods (target method). Additionally, the presence of PFAS precursors for influent and biosolids were assessed by converting oxidizable PFAS to terminal PFAS in samples prior to analysis by LC-MS/MS (Total Oxidizable Precursors or TOP assay). Through target analysis, sampled municipal POTWS exhibited comparable concentrations for the sum of quantified PFAS, with median concentrations of 27 ng/L in influent, 58 ng/L in effluent, and 178 ng/g dw in biosolids. The sum of quantified PFAS TOP concentrations were significantly higher than target concentrations across matrices studied, with median concentrations of 231 ng/L in influent and 594 ng/g dw in biosolids. TOP method was not conducted on effluent samples.

The purpose of the present Phase 2 study is to answer the following primary study questions:

- Are residential flows an important source of PFAS to participating POTWs?
- Can specific industries (e.g., industrial laundry, food waste, semiconductor manufacturing) be identified as discharging higher than average concentrations of PFAS (including oxidizable precursors and end products) to POTWs?

Secondary questions that we will investigate to the extent possible with the available data and resources are:

- How do PFAS concentrations (including TOP) compare in influent, effluent, and biosolids from participating POTWs?

- Are there significant amounts of organofluorine in wastewater samples not captured by TOP?
- How do biosolid digestion processes at POTWs affect the transformation and levels of measurable PFAS in biosolids (compare undigested to digested biosolids)?
- Can we identify PFAS “fingerprints” within influent samples linked to specific sources?

Sampling locations representing specific residential or industrial/commercial wastewater discharges will be collected and analyzed for PFAS to answer the study questions. Sewershed sampling locations were developed through discussions with study participants from the Bay Area Clean Water Agencies (BACWA) who volunteered to participate to provide information that will inform the region and state. Influent, effluent, biosolids samples will be analyzed from a subset of POTWs who participated in Phase 1 study to address follow up study questions. Additionally, Adsorbable Organofluorine Analysis (AOF) analysis will be included to further elucidate concentrations of organofluorine compounds in wastewater influent and effluent where target compounds are adsorbed onto activated carbon and inorganic fluorine is removed prior to analysis of all fluorine in the sample through combustion ion chromatography. Another addition is that groundwater samples will be collected from one POTW to assess the potential transport of PFAS to groundwater from biosolids stored at the facility.

The specific objectives of this sampling effort are:

1. Collect sewershed samples capturing wastewater discharges from residential communities (See Section 4.1) for PFAS target and TOP analyses from the following POTWs:

    a. San Francisco Public Utilities Commission Southeast and Oceanside Water Pollution Control Plants (SFPUC_SE and SFPUC_OS)
    b. East Bay Municipal Utility District Main Wastewater Treatment Plant (EBMUD)
    c. Central Contra Costa Sanitary District Wastewater Treatment Plant (CCCSD)

2. Collect sewershed samples capturing wastewater discharges from industrial and commercial operations for PFAS target and TOP analyses from the following POTWs:

    a. San Jose-Santa Clara Regional Wastewater Facility (SJSC)
    b. San Francisco Public Utilities Commission Southeast and Oceanside Water Pollution Control Plants (SFPUC_SE and SFPUC_OS)
    c. East Bay Municipal Utility District Main Wastewater Treatment Plant (EBMUD)
    d. Dublin San Ramon Services District Wastewater Treatment Plant (DSRSD)

e. Central Contra Costa Sanitary District Wastewater Treatment Plant (CCCSD)

Industrial and commercial operations included at a screening level in this study include industrial laundry operations, semiconductor/electronics/chemical manufacturers that are suspected to use PFAS, operations with chrome reduction/chrome plating, and hospitals. Wastewater from car washes and paperboard manufacturing are also included.

3. Collect influent and final effluent samples for PFAS target, TOP, and AOF analyses from the following POTWs:

    a. San Jose-Santa Clara Regional Wastewater Facility (SJSC)
    b. Southeast Water Pollution Control Plant, San Francisco (SFPUC_SE)
    c. Oceanside Water Pollution Control Plant, San Francisco (SFPUC_OS)
    d. East Bay Municipal Utility District Main Wastewater Treatment Plant (EBMUD)
    e. Dublin San Ramon Services District Wastewater Treatment Plant (DSRSD)
    f. Central Contra Costa Sanitary District Wastewater Treatment Plant (CCCSD)
    g. City of San Mateo Wastewater Treatment Plant (CSM)

4. Collect treated biosolids for PFAS target and TOP analyses from the following POTWs:

    a. Southeast Water Pollution Control Plant, San Francisco (SFPUC_SE)
    b. Oceanside Water Pollution Control Plant, San Francisco (SFPUC_OS)
    c. East Bay Municipal Utility District Main Wastewater Treatment Plant (EBMUD)
    d. Dublin San Ramon Services District Wastewater Treatment Plant (DSRSD)
    e. City of San Mateo Wastewater Treatment Plant (CSM)

5. Collect undigested blended solids (biosolids prior to digestion) for PFAS target, TOP from the following POTWs:

    a. Southeast Water Pollution Control Plant, San Francisco (SFPUC_SE)
    b. Oceanside Water Pollution Control Plant, San Francisco (SFPUC_OS)
    c. East Bay Municipal Utility District Main Wastewater Treatment Plant (EBMUD)

6. Collect blended food waste (trucked to EBMUD and added to feed prior to digestion) for PFAS target and TOP analyses from EBMUD.

7. Collect groundwater samples for PFAS target and TOP analyses from DSRSD.

## 2. Key Personnel and Approvals

The personnel who will review and approve this SAP before it is finalized are shown in Table 2.1.

**Table 2.1.** Key Personnel Approvals for this SAP.

| Name | Affiliation | Duties | Date of Review and Approval |
|---|---|---|---|
| Diana Lin | SFEI | Project Manager/Lead Scientist | 3/11/2022 |
| Rebecca Sutton | SFEI | Co-lead Scientist | 2/20/2022 |
| Don Yee | SFEI | RMP QA Officer | 3/1/2022 |
| Adam Wong | SFEI | RMP Data Manager | 3/1/2022 |
| Lorien Fono | BACWA | Executive Director | 3/11/2022 |
| Wendy Linck | State Water Board | Senior Engineering Geologist | 3/11/2022 |
| Richard Grace | SGS AXYS | Director - Sales, Marketing, and Service | 2/23/2022 |
| Sean Campbell | SGS AXYS | Business and Technical Consultant | 2/23/2022 |

The personnel who should be contacted in case of any questions regarding this SAP are shown in Table 2.2.

**Table 2.2.** Key Personnel for PFAS Sampling 2021 Contact Information.

| Name | Affiliation | Duties | Contact Information (email/phone/cell) |
|---|---|---|---|
| Diana Lin | SFEI | Project Manager/Lead Scientist | diana@sfei.org<br>(510) 746-7385 / (714) 932-8085 |
| Miguel Mendez | SFEI | Assistant Environmental | miguelm@sfei.org<br>(510) 746-7319 / (773) 698-5472 |
| Adam Wong | SFEI | RMP Data Manager | adamw@sfei.org<br>(510) 746-7309 |

The personnel who should be contacted at each participating POTW in case of any questions regarding PFAS monitoring are shown in Table 2.3.

**Table 2.3.** POTW Contact Information.

| Name | Affiliation | Title/Duties | Contact Information (email/phone) |
|---|---|---|---|
| Blake Brown | CCCSD | Supervising Chemist | bbrown@centralsan.org (925) 229-7237 |
| Mary Lou Esparza | CCCSD | Laboratory Program Administrator | mesparza@centralsan.org (925) 335-7751 |
| Tim Potter | CCCSD | Environmental Compliance Program Administrator | tpotter@centralsan.org (925) 229-7380 |
| Xiongbing Liang | CSM | Laboratory Supervisor | xliang@cityofsanmateo.org (650) 522-7388 |
| Kristy Fournier | DSRSD | Laboratory And Environmental Compliance Manager | fournier@dsrsd.com (925) 875-2325 |
| Alicia Chakrabarti | EBMUD | Manager of WW Environmental Services | alicia.chakrabarti@ebmud.com (510) 287 2059 |
| Ryan Batjiaka | SFPUC_OS & SFPUC_SE | Regulatory Specialist (SFPUC Wastewater Enterprise) | RBatjiaka@sfwater.org (628) 233-4807 |
| Eric Dunlavey | SJSC | Environmental Program Manager | eric.dunlavey@sanjoseca.gov (408) 635-4017 |
| Casey Fitzgerald | SJSC | Pretreatment Program Manager | casey.Fitzgerald@sanjoseca.gov |

The personnel who should be contacted at SGS AXYS in case of any questions on analysis of PFAS are shown in Table 2.4.

**Table 2.4.** Laboratory Contact Information

| Lab / Company | Name | Phone | Email | Shipping Address |
|---|---|---|---|---|
| SGS AXYS | Sean Campbell | (250) 655-5834 | Sean.Campbell@sgs.com | 2045 Mills Rd W V8L5X2 Sidney, British Columbia, CA |

# 3. Sampling Schedule

**Table 3.1.** Anticipated Schedule for 2022 BACWA PFAS Study, Phase 2

| Date | Activity |
|---|---|
| Feb 2022 | SAP finalized and approved |
| Mar–May, 2022 | Sample collection |
| Late May 2022 | Samples shipped to SGS AXYS for analysis |
| Aug 2022 | Laboratory analysis of samples. Final results provided to SFEI within 60 days of receiving the last sample. |
| Sep–Nov 2022 | Data QA |
| Dec 2022–Feb 2023 | Upload data and monitoring report to Geotracker |
| Dec 2022–Feb 2023 | Data analysis and interpretation |
| Feb–April 2023 | Discussion of results |
| June 2023 | Draft Report |
| September 2023 | Final Report |

*Dates are subject to change earlier or later based on project progress.

# 4. Study Design

## 4.1 Residential Sewershed Site Selection and Sampling Plan

Sewershed sampling locations representing diverse residential areas will be sampled and analyzed for PFAS and compared to average influent concentrations from receiving POTWs to assess whether residential sources are an important source of PFAS. Therefore, to the extent feasible, the following factors were considered to select sample sites that will represent the range of PFAS concentrations in residential flows in the Bay area.

- Sample locations receive only residential flows, or include less than 10% of other uses that are not expected to have significantly different sources of PFAS compared to residential. Any exception to residential flows is noted in Table 4.1.
- Diversity in housing types (e.g., multi-unit dwellings, single family homes), neighborhoods, infrastructure age, geographic locations. This also captures diversity in sampling households in different socio-economic groups. Many household items contain PFAS products, but it is unknown what the major sources of PFAS are for residential discharges. A separate study led by University of California Irvine and Orange County Sanitary District will measure PFAS from different parts of the house. In this study, we attempt to sample diversity in types of households to capture variations from different residential communities.
- Sample replicates are included to assess variations due to sampling.
- At select sites, samples will be collected on different days of the week to screen for any significant changes in PFAS concentrations.

**Table 4.1.** Description of prioritized residential sampling sites and planned sample collection. Each "sample" is collected in 4 separate containers (2 x 125 mL (for MLA-110 target analysis) and 2 x 60 mL (MLA-111 TOP analysis).[1,2]

| POTW | Description | # of Samples | Notes |
|---|---|---|---|
| SFPUC | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | 4 | Composite sample<br>+ 1 replicate<br>+ 1 other weekday<br>+ 1 weekend sample) |
| SFPUC | Park Merced Apartments (458 units)<br>Font Blvd circle at Cambon Dr. | 1 | |
| SFPUC | San Rafael and Monterey (438 units) | 1 | |
| SFPUC | Rutland and Raymond (984 dwelling units in 965 buildings, single-family homes, includes liquor store and two schools) | 2 | 1 weekday sample<br>+ 1 weekend sample |
| SFPUC | Urbano and Alviso (370 houses) | 1 | |
| SFPUC | Dewey Circle (~330 houses)<br>240 Montalvo Ave | 1 | |
| SFPUC | Quintara Steps (~110 houses)<br>60 Fanning Way | 1 | |
| SFPUC | Ventura Ave (~100 houses) | 1 | |
| SFPUC | 30 block neighborhood with high concentration of food businesses and light industries | 1 | Included for comparison |
| CCCSD | Ruth Drive, Pleasant Hill – 47B5 M23.9 (~240 single-family homes) | 2 | Sample + replicate |
| CCCSD | Rosincrest Drive, San Ramon – 102D3 M4 (~252 single-family homes) | 1 | |
| CCCSD | Creekside Drive, Walnut Creek – 75C4 M10 (9 apartment complexes – includes community center) | 1 | |
| EBMUD | Berkeley Hills (~800 single-family homes) | 1 | |
| EBMUD | East Oakland (~270 units) | 1 | |
| SFPUC | Field blank | 1 | |
| SFPUC | Equipment rinse blank | 1 | |
| CCCSD | Field blank | 1 | |
| **Total: 22 samples (14 locations, 3 blanks)** | | | |

[1] See Appendix A for a full list of sample IDs and sample volumes expected. Additional sample volumes needed for laboratory QC samples (e.g., MS/MSD) will be specified.
[2] Information about the sampled population will be requested in the field sampling form.

## 4.2 Industrial and Commercial Sewershed Site Selection and Sampling Plan

Many industrial and commercial operations and products may contain PFAS. Previous State Water Resource Control Board (SWRCB) investigations have identified landfills, chrome plating operations, airports, and bulk fuel terminals/refineries as potential sources of PFAS, and have issued investigation orders to specific facilities within these categories. Data from many of these facilities' orders have been reported to Geotracker. Some Bay Area facilities have received investigation orders, and data are anticipated to be uploaded to Geotracker. This study will avoid duplicating PFAS sampling that has already been conducted at specific sites and reported to Geotracker.

Additionally, SWRCB intends to send PFAS investigation orders to industrial facilities near PFAS-impacted supply wells. The SWRCB intends to focus on several potential PFAS industrial sources, including: semiconductor, circuit board and electronics manufacturers; former chrome plating facilities, non-chrome metal plating and finishing facilities; former refineries or bulk fuel terminals; junkyards; auto repair shops; herbicide/pesticide manufacturers; mining industry; textile manufacturers and processors; furniture manufacturers and upholsterers; carpet manufacturers; cardboard/paper packaging and food packaging manufacturers; surface coatings/paints/varnish manufacturers and high-volume users; manufacturers of non-stick or known PFAS-containing products[1]. Dry cleaners are also recognized as a potential source, but are not planned to be included in investigation efforts due to limited resources. Since the timeline for issuing these additional investigations is currently unclear, results from this study may inform SWRCB PFAS investigations.

The goal of this study is to screen a limited number of industries discharging to BACWA POTWs to evaluate if these may be important PFAS sources in wastewater discharged to the Bay. To the extent feasible, the following factors were considered in the selection of industrial and commercial sewershed sampling locations:

- More than one facility for each targeted industry are available and included because industrial discharges can vary significantly among different facilities. At industries that are lower priority, fewer sampling locations are included.
- Field replicates are included to assess variations due to sampling and analysis. See Section 5.4 for specific sampling instructions. For example, field replicates for grab samples will be collected in sequence.
- At a limited number of sites, samples will be collected from different dates in order to avoid missing potential short-term "pulse" PFAS discharges from facility operations. For the same reason, 24-hour composite samples are preferred when available. Grab samples will be collected when composite sampling

[1] Email correspondence with Kimberlee West, San Francisco Bay Regional Water Quality Control Board on 10/26/2021.

equipment is not feasible to set up at the site or there is significant risk of contamination.

- Textiles, carpets, and upholstery are known to be treated for PFAS for stain resistance, and recent investigations have measured PFAS in textiles in Norway (Herzke et al., 2012), as well as in dry cleaning solvent and wastewater in Florida (Barnes et al., 2021). In this study, we evaluate industrial laundry as a potential source of PFAS potentially derived from textiles, and a variety of sites are identified below. Santa Rita jail also has a large laundry onsite, and is included in this study. The Santa Rita Jail will be sampled at the permit compliance point.

- Chrome platers are suspected PFAS sources due to use of PFAS as a vapor suppressant in the metal plating bath to reduce chromium-VI air emissions. To our understanding, the chrome platers included in this study were not included in previous SWRCB PFAS investigation orders. The centralized waste treatment facility in San Jose was selected based on information that the facility operates a chrome reduction batch process.

- The semiconductor facility in San Jose was selected based on CERS (California Environmental Records System) records indicating these facilities use AZ Aquatar coatings with PFAS derivatives. The chemical manufacturer was selected because they use semiconductor coating, which may contain PFAS.

- The pulp paperboard facility was selected due to the known presence of PFAS in food packaging and previous detections of elevated discharges from related facilities (Clara et al., 2008; Kim Lazcano et al., 2020; Langberg et al., 2021). While paperboard manufacturing is not common in the Bay Area, measurements from this study may inform other PFAS investigations in the State.

- The Camp Parks military base has AFFF onsite and is permitted to use it in the case of an aircraft crash. Although the risk is low that the base is contributing to PFAS levels seen at the plant, it is still a site of interest for the study.

- PFAS coatings are used in a variety of medical textiles, materials, and products[2], and to our knowledge wastewater discharges from hospitals have not been investigated and reported for PFAS.

- These selected facilities have industrial wastewater discharge permits and are sampled regularly for compliance monitoring. The sampling for this study is designed to be consistent with the existence compliance schedule at the facility.

A summary of the industrial and commercial sewershed sources that will be sampled is summarized in Table 4.2.

[2] https://www.teflon.com/en/industries-and-solutions/industries/medical

**Table 4.2**. Description of prioritized industrial and commercial sewershed sampling sites and planned sample collection. Alternating colors note different samples within a specific industrial sector. Each "sample" is collected in 4 separate containers (2 x 125 mL (for MLA 110 target analysis) and 2 x 60 mL (MLA 111 TOP analysis). [1,2]

| POTW | Industry | Description | # of Samples | Notes |
|---|---|---|---|---|
| SJSC | Industrial Laundry | Prudential Overall Supply (MI-040B) 1429 N Milpitas Blvd, Milpitas 95035 | 3 | grab sample during setup + 1 grab replicate + 1 composite |
| SJSC | Industrial Laundry | Alsco (SJ-546B) 2275 Junction Ave San Jose 95131 | 1 | |
| SFPUC | Industrial laundry | ALSCO, Inc. 1575 Indiana St. OR Bay Area Linens and Valet Service. 100 Cypress St. | 1 | |
| EBMUD | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | 2 | second sample collected on different day |
| CCCSD | Industrial laundry | Nu West Textile 1910 Mark Court Concord, CA 94520 | 1 | |
| DSRSD | On-site laundry/Jail | Santa Rita Jail | 2 | second sample collected on different day |
| SJSC | Chrome plater | A & E Anodizing (SJ-314B) 652 Charles St Suite A, San Jose 95112 | 2 | grab sample during setup + 1 composite |
| SJSC | Chrome plater | Amex Plating, Inc. (SC-182B) 3333 Woodward Ave, Santa Clara 95054 | 2 | grab sample during setup + 1 composite |
| SJSC | Chrome reduction processes/ Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) 1021 Berryessa Rd, San Jose 95133 | 2 | second composite from different month |
| SFPUC | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | 2 | second sample collected on different day |
| SJSC | Semiconductor | Lumentum Operations LLC (SJ-673B) 80 Rose Orchard Way, San Jose 95134 | 4 | 1 composite + composite replicate, 1 grab + grab replicate |
| SJSC | Chemical Manufacturer | Honeywell International (SC-225B) 3500 Garrett Dr, Santa Clara 95054 | 2 | 1 composite 1 grab |

| POTW | Industry | Description | # of Samples | Notes |
|---|---|---|---|---|
| DSRSD | AFFF on-site/ Military Operations | Camp Parks | 2 | second sample collected on different day |
| SFPUC | Car wash | Tower Car Wash<br>1601 Mission St. | 1 | |
| SFPUC | Car wash | Shell Oil Car Wash | 1 | |
| SFPUC | Car wash | Auto City Car Wash | 1 | |
| SFPUC | Hospital | UCSF Mission Bay | 1 | |
| SFPUC | Hospital | SF General Hospital | 1 | |
| CCCSD | Hospital | John Muir Medical Center<br>1601 Ygnacio Valley Road<br>Walnut Creek, CA 94596<br>(2 sample points) | 2 | 1 from each sample point |
| CCCSD | Hospital | San Ramon Regional Medical Center<br>6001 Norris Canyon Road<br>San Ramon, CA 94583 | 1 | |
| SJSC | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) 525 Mathew St, Santa Clara 95050 | 2 | grab sample during setup + 1 composite |
| SJSC | Field Blank | San Jose | 1 | |
| SFPUC | Field Blank | San Francisco | 1 | |
| SJSC | Equipment Rinse Blank | San Jose | 1 | |
| **Total: 39 samples (21 locations, 3 blanks)** | | | | |

[1] See Appendix A for a full list of sample IDs and sample volumes expected. Additional sample volumes needed for laboratory QC samples (e.g., MS/MSD) will be specified.

[2] Information about the industrial users operations will be requested in the field sampling form.

In the following sections, sampling locations are grouped by facility, since each POTW will be conducting its own sample collection.

## 4.3 Influent, Effluent, Biosolids Sampling at POTWs

Influent, effluent, and biosolid samples will be collected at the same locations as the Phase 1 study (Mendez et al., 2020), and will also address monitoring needs for the State Water Board. The Phase 1 study (Mendez et al., 2021) found PFAS concentrations in wastewater samples from municipal facilities to be comparable. Sum of target PFAS concentrations in influent, effluent, and biosolids from a diverse set of twelve municipal facilities were within an order of magnitude. Therefore, for this Phase 2 study, it is sufficient to conduct a second round of sampling at a subset of the facilities. The main focus of this Phase 2 is to conduct the sewershed sampling to assess contributions from upstream residential and industrial sewershed sources.

Sampling of wastewater (influent, effluent, and biosolids) at the POTW will also allow comparison of the PFAS in sewershed samples to average concentrations at POTWs to evaluate which sewershed sources may contribute a higher proportion of PFAS. We recommend POTW samples be collected within the same month as residential and industrial sewershed samples to allow better comparison. Analyzing these samples via target PFAS, TOP PFAS, and AOF PFAS (See Section 8 Laboratory Analytical Methods) will also allow us to evaluate the study questions: How do TOP concentrations compare in influent, effluent, and biosolids from participating POTWs? Are there significant amounts of organofluorine in wastewater samples not captured by TOP?

Influent and effluent samples will be collected at the following seven POTW facilities and analyzed for PFAS:

- SJSC
- SFPUC_SE
- SFPUC_OC
- EBMUD
- CCCSD
- DSRSD
- CSM

The goal is to collect representative influent and effluent samples from each POTW. Where possible, influent and effluent samples will be collected as 24-hour composites. If sampling equipment is not set up at the sample location, grab samples will be collected. Field sampling forms should note whether samples are collected as 24-hour composites or grab samples, as well as the sampling times. This sampling plan does not require samples to be collected at a specific time, or that influent and effluent samples be timed to capture the same unit of water transported through the POTW.

Additional sample volumes for influent and effluent samples are collected for AOF analyses. For clarity, requested sample volumes for target, TOP, and AOF analyses are included as separate columns in the table below.

**Table 4.8.** Influent and effluent samples collected by participating POTWs. Each influent "sample" is collected in 6 separate containers (4 x 125 mL (for MLA 110 target analysis and AOF analysis) and 2 x 60 mL (MLA 111 TOP analysis)). Each effluent "sample" is also collected in 6 separate containers (2 x 500 mL (for MLA 110 target analysis) and 2 x 125 mL (MLA 119 AOF analysis) and 2 x 60 mL (MLA 111 TOP analysis)).

| POTW | Matrix | # of Samples |
|---|---|---|
| SJSC | Influent | 1 |
| SFPUC_SE | Influent | 1 |
| SFPUC_OS | Influent | 1 |
| DSRSD | Influent | 1 |
| EBMUD | Influent | 2 (second sample is replicate) |
| CCCSD | Influent | 1 |
| CSM | Influent | 1 |
| CCCSD | Field Blank (Influent) | 1 |
| CCCSD | Equipment Rinse Blank (Influent) | 1 |
| SJSC | Effluent | 1 |
| SFPUC_SE | Effluent | 1 |
| SFPUC_OS | Effluent | 1 |
| DSRSD | Effluent | 1 |
| EBMUD | Effluent | 2 (second sample is replicate) |
| CCCSD | Effluent | 1 |
| CSM | Effluent | 1 |
| | **Total:** | **18** |

[1] See Appendix A for a full list of sample IDs and sample volumes expected. Additional sample volumes needed for laboratory QC samples (e.g., MS/MSD) will be specified.

Biosolid samples will be collected at the same facilities, except for SJSC and CCCSD that have unique biosolids digestion processes. At SJSC, digested sludge is stabilized in large lagoons for about 3 years, after which the material is dredged, dried, and hauled away for disposal. SJSC is also changing the way they process biosolids. For both these reasons, SJSC biosolids will not be sampled because samples will not be representative of the final biosolids produced. At CCCSD, sludge is incinerated to form ash. In the previous Phase 1 study, we detected minimal levels of PFAS in the ash sample. AOF analysis is not yet available for biosolid samples by the analytical laboratory.

**Table 4.10.** Final digested biosolids samples collected by participating POTWs. Samples are collected into a 250 mL jar half-filled. Both target and TOP samples will be sub-sampled from the same container.[1]

| POTW | Matrix | # of Samples |
|---|---|---|
| SFPUC_SE | Biosolids | 2 (second sample from different date) |
| SFPUC_OS | Biosolids | 2 (second sample from different date) |
| DSRSD | Biosolids | 1 |
| EBMUD | Biosolids | 3 (replicate + second sample from different date) |
| CSM | Biosolids | 1 |
| DSRSD | Field Blank | 1 |
| DSRSD | Equipment Rinse Blank | 1 |
| | **Total:** | **11** |

[1] See Appendix A for a full list of sample IDs and sample volumes expected. Additional sample volumes needed for laboratory QC samples (e.g., MS/MSD) will be specified.

Additionally, undigested blended solids feed into the digester will be collected at three facilities to investigate changes in PFAS in biosolids from the digestion process. The expected total solids content is 4-6%.

Additionally, food waste received at EBMUD will be sampled for PFAS as a potential source of PFAS. A recent study led by USGS measured PFAS in food process wastewater, with the sum of PFAS measured up to 185 µg/L (Hubbard et al., 2021). PFAS measurements can inform whether food waste and food packaging may be important sources of PFAS.

EBMUD receives approximately 15 tons per day of source-separated food waste (five days per week), which is collected from restaurants, groceries, and cafeterias in Central Contra Costa County. The material is ground and delivered to the EBMUD Main Wastewater Treatment Plant, where it is tipped into an underground tank. It is then slurried with treated wastewater to a total solids concentration of ~8%. It is further processed through a rotocut (grinder type device) and a paddle finisher (screening contamination). The finished food waste or pulp from the paddle finisher, which is what will be sampled, then goes to the blend tanks, where it is mixed with primary sludge and thickened waste activated sludge, and high-strength liquid organic wastes before being fed to the digesters. Contamination is removed at the source, as well as through the processing steps at the transfer station and at EBMUD; however, there is some de minimis remaining micro-contamination, including plastics and possible food packaging. The character is fairly consistent day to day. The food waste sample will be analyzed as a solid sample.

**Table 4.11.** Blended solids feed into the digester will be collected by participating POTWs. Samples are collected into a 250 mL jar half-filled. Both target and TOP samples will be sub-sampled from the same container.

| Matrix | POTW | # of Samples |
|---|---|---|
| Undigested solid feed | SFPUC_SE | 2<br>(sample from different date) |
| Undigested solid feed | SFPUC_OS | 2<br>(second sample from different date) |
| Trucked Food Waste | EBMUD | 2<br>(second sample from different date) |
| Undigested solid feed | EBMUD | 3<br>(replicate + second sample from different date) |
| | **Total:** | **9** |

[1] See Appendix A for a full list of sample IDs and sample volumes expected. Additional sample volumes needed for laboratory QC samples (e.g., MS/MSD) will be specified.

See Appendix C for individual POTW processing diagrams and location of influent, effluent, biosolid sampling sites at each POTW facility.

## 4.4 Groundwater Sampling Sites

Groundwater samples at DSRSD will be collected and analyzed to evaluate potential transport PFAS to on-site groundwater from on-site processing and storage of biosolids at the Facultative Sludge Lagoons (FSLs) and Dedicated Land Disposal Site (DLD). DSRSD has conducted site investigations and selected the sites below for monitoring.

**MW5 (upper aquiclude):** Located between FSLs and in the center of the groundwater mount. This well is the most likely to be affected by plant operations and least likely to be affected by off-site sources (aquiclude wells in peripheral locations are more likely to also be affected by off-site sources).

**MW3 (upper aquifer):** Located adjacent to and directly downgradient of FSL-1, and near MW5. Based on groundwater flow conditions, more likely to be affected by plant operations and less likely to be affected by off-site sources than the other aquifer wells.

**NW-75 (upper aquifer):** Peripherally located and consistently crossgradient from FSLs and DLDs. Based on groundwater flow conditions, less likely to be affected by plant operations and more likely to be affected by off-site sources than the other aquifer wells.

Each sample will be collected into 4 containers (2 x 500 mL + 2 x 60 mL) for target and TOP analysis.

**Table 4.12.** Groundwater samples collected by DSRSD. Each “sample” is collected in 4 separate containers (2 x 500 mL (for MLA 110 target analysis) and 2 x 60 mL (MLA 111 TOP analysis).

| Matrix | POTW | Well ID | # of Samples |
|---|---|---|---|
| Groundwater | DSRSD | **MW5** (upper aquiclude) | 1 |
| Groundwater | DSRSD | **MW3** (upper aquifer) | 1 |
| Groundwater | DSRSD | **NW-75** (upper aquifer) | 1 |
| | | **Total:** | **3** |

[1] See Appendix A for a full list of sample IDs and sample volumes expected. Additional sample volumes needed for laboratory QC samples (e.g., MS/MSD) will be specified.

# 5. Sampling Procedure

The following guidelines were adapted from the PFAS Phase 1 Sampling and Analysis Plan (Mendez et al., 2020) with use of guidance documents from the California State Water Resources Control Board (California State Water Resources Control Board, 2020), Michigan Department of Environmental Quality (Michigan Department of Environmental Quality, 2018), and current literature on PFAS background contamination (Bartlett and Davis, 2018; Rodowa et al., 2020). Recent studies examining sources of PFAS contamination during sampling indicate background contamination may not be as common as previously suggested. To be consistent with published guidance, previous studies, and in an abundance of caution, several materials are best avoided if they do not compromise safety or practicality.

## 5.1 Sample Equipment: Acceptable and Prohibited Materials

The typical field sampling environment has many potential sources of PFAS including sampling equipment, field documentation, personal protective equipment, clothing, and personal care products. As this can lead to background contamination, common materials in the field sampling environment have been separated into three categories as defined below:

Acceptable Materials: These materials are known not to be sources of PFAS cross contamination and can be used during all sampling stages and in the immediate sampling environment.

Non-contact materials: These materials may contain PFAS; they should not come into direct contact with the sample and also used away from all sampling equipment. Thoroughly wash hands and use new gloves after handling any of these materials.

Prohibited materials: These materials are known to contain PFAS that may present a threat to sample integrity and should not be used during any stage of sampling.

Each facility has been provided with a PFAS field sampling kit including sample containers and shipping materials to collect and ship all requested samples. The contents of each kit shipped to participating POTWs is found in Appendix D.

### *All Sampling Equipment*

Prohibited: Any and all sampling equipment that contain PFAS-based (fluoropolymer) parts that would be in direct contact with the sample or sampling environment. These fluoropolymers include, but are not limited to:

- Polytetrafluoroethylene (PTFE), including the trademark Teflon® and Hostaflon®, which can be in the ball lining of some hoses and tubing, and some objects that require the sliding action of parts.

- Polyvinylidene fluoride (PVDF), including the trademark Kynar®, which can be in tubing and films/coatings on aluminum, galvanized or aluminized steel.
- Polychlorotrifluoroethylene (PCTFE), including the trademark Neoflon®, which can be in many valves, seals, and gaskets.
- Ethylene-tetrafluoro-ethylene (ETFE), including the trademark Tefzel®, which can be in many wire and cable insulation and covers, liners in pipes, and some cable tie wraps.
- Fluorinated ethylene propylene (FEP), including the trademarks Teflon® FEP and Hostaflon® FEP, and may also include Neoflon®, which can be in wire and cable insulation and covers, pipe linings, and some labware.

Non-contact materials: Low density polyethylene (LDPE) should be avoided if it comes into direct contact with the sample. If absolutely necessary, LDPE parts may be used if an equipment blank has confirmed it is PFAS-free. LDPE resealable storage bags (i.e., Ziploc bags) may be used for storage and shipping.

***Sample Containers***

Acceptable: High-density polyethylene (HDPE) containers of various sizes (500 mL, 125 mL, and/or 60 mL) provided by SGS AXYS.

***Pumps, Tubing and Sampling Instruments***

Acceptable: Supplies must be made from acceptable materials known to be PFAS free, which include HDPE, polypropylene, silicone, stainless steel, nylon (e.g., cable ties), polyvinyl chloride (PVC), acetate, and cotton. Glass may be used as long as it is known to be PFAS-free (or decontaminated; see Section 4.2) and comes into contact with the sample for a short period of time (e.g. use for immediate collection and then transfer of a sample to a non-glass bottle).

To collect composite samples, automatic samplers may be used, though there may be an increased potential for cross-contamination because the tubing, valves, strainers, suction lines, distribution nozzles, and other parts may be made from PFAS (fluoropolymers). It is recommended that parts on the sampler be screened prior to sampling by reviewing the safety data sheets (if available) and collection of an equipment blank to verify that the parts are PFAS-free.

***Field Documentation***

Acceptable: Ballpoint pens and Sharpie® markers (only fine or ultra-fine) for writing and labeling. Loose paper (non-waterproof, non-recycled) as well as aluminum, polypropylene, or Masonite field clipboards may be used.

Non-contact materials: Rite in the Rain® notebooks, provided gloves are changed after note taking.

Prohibited: Regular and thick sized markers of any brand, sticky notes, plastic clipboards, or waterproof paper and notebooks.

### *Personal Protective Equipment and Other Clothing*

Personal safety is paramount and should not be compromised to prevent cross-contamination. Therefore, if the use of PPE is necessary to ensure the health and safety of sampling personnel and no PFAS-free alternative is available, then note the use in the field sampling form. Please wash hands and change gloves after handling any PFAS containing products (including items designated only to the staging-area).

Acceptable: Synthetic or 100% cotton clothing that has been well-laundered without the use of fabric softeners. Any clothing (including shoes) made of or with polyurethane, PVC, wax coated fabrics, rubber and neoprene. Powderless nitrile gloves for all sampling events.

Non-contact materials: Non PFAS-free boots and first aid adhesive wrappers.

Prohibited: Anti-fogging lens spray, wipes, or solutions for glasses or safety goggles - recent investigations have identified high levels of PFAS in these products (Herkert et al., 2022). Latex gloves, new or unwashed clothing, any clothes recently treated with fabric softeners, fabric protectors, insect resistance and water/stain/dirt-resistant chemicals. Anything made with water/stain/dirt-resistant fabrics such as Coated Tyvek®, Gore-Tex®, Scotchgard™, and RUCO®.

### *Personal Care Products*

If possible, please try to avoid use of personal care products (hair products, make-up, perfume/cologne, moisturizers, anti-fogging lens spray or wipes for glasses or safety goggles, etc.) on the day of sampling. If any are used on the day of sampling, record in the field sampling form.

Non-contact materials: Sunscreens and insect repellents, preferably from products known to not contain PFAS (nonexhaustive list provided from the Michigan PFAS Sampling Quick Reference Field Guide).

Prohibited: Application of any personal care products in the sampling area.

### *Food Packaging Materials*

Prohibited: PFAS are known to be prevalent in food packaging, including paper plates, aluminum foil, paper towels, food containers, bags, and wraps. Food and beverages should not be consumed at the sampling site. If they must be consumed during the sampling event, a dedicated eating area should be identified (see section 4.3).

## 5.2 Sample Equipment Cleaning and Decontamination Procedures

Sample equipment that comes into contact with the sampling media (i.e., buckets, carboys, extension rods, scoops, tubing, parts of automatic samplers) should be

cleaned and decontaminated (or new) prior to use where possible. Automatic samplers should be decontaminated, or the strainer replaced between each sampling event. If new tubing is used, decontamination procedures are not necessary. Sampling equipment can be scrubbed using a polyethylene or PVC brush to remove particulates.

The following procedure is recommended for cleaning and decontamination: Wash with PFAS-free soap (i.e., Alconox®), scrub (if applicable). Follow up with a methanol rinse and rinse with PFAS free water. Please note any changes to this cleaning procedure in the field sampling form (e.g., if a methanol rinse is not used due to safety concerns). The laboratory will provide PFAS free reagent water for a final rinse collected for an equipment blank. Please note if this, or any other cleaning method, has been used in the field sampling form.

## 5.3 General Sampling Guidelines

In order to prevent cross-contamination, a sampling sequence should be established going from areas suspected to be least contaminated to those thought to be most contaminated. Therefore, we recommend sampling influent and effluent samples at the POTW, prior to collecting biosolid samples. For example, when sampling directly at a POTW, the following order of samples collection is recommended:

### *Site Set-Up*

The sampling site should be evaluated prior to sampling to identify potential contamination risks. As applicable, it is also recommended to select dedicated eating, staging, and sampling areas as defined below:

1. Eating Area: The eating area is separate from the sampling and staging areas, and the only place where food and drink should be stored and consumed. Food packaging must not be in the sampling and staging areas due to the potential for PFAS cross-contamination.

2. Staging Area: The staging area is where equipment is set-up and personal protective equipment is put on and taken off. PFAS-free over-boots cover and PPE should be put on in the staging area prior to sampling activities.

3. Sampling Area: Sampling areas are the areas of the field where samples are collected. When staff need to leave the site, they should move to the staging area before removing gloves, coveralls, and any other appropriate PPE, if worn.

### *Sample Collection*

A variety of samples will be collected for this study, with most being conducted using the composite sampling method to minimize background contamination, increase method consistency, and best ensure each facility has the capabilities to meet sampling needs.

Samples should be collected as 24-hour composites when possible. Even when samples are collected over shorter intervals, sample sets to be used as lab replicates or for parent/MS/MSD sets should be generated as field composites whenever possible; e.g., filling each bottle ¼ at a time, or filling into a larger container and subsampling well-homogenized aliquots into the final sample containers. SFEI will work with SGS AXYS and sample collection agencies to select samples used as lab replicates or parent/MS/MSD sets, and we anticipate selecting 24-hour composites for these QC sample sets.

The following protocols should be followed when collecting any PFAS samples:

- Powderless nitrile gloves must be worn on hands before collecting samples, handling sample containers, or handling sampling equipment.
- The sample container must be kept sealed and only opened during sample collection. The sampling container cap or lid should never be placed on the ground or on any other surface unless it is PFAS-free. If it is necessary to set the cap down, it should be set on a clean surface (cotton sheeting, HDPE sheeting, triple rinsed cooler lid, etc.).
- Do not insert or let tubing or any materials inside the sample bottle. Dust and fibers must be kept out of sample bottles.
- Containers should be filled to 80-90% capacity (providing 10-20% volume headspace) to allow for expansion during freezing

### *Sample Storage*

It is recommended that aqueous and biosolids samples to be analyzed for PFAS be frozen (below 0°C) as soon as possible. When frozen, the hold time for wastewater influent and effluent is 90 days from collection, while the hold time is extended to one year for biosolids.

If samples cannot be frozen on site after collection, samples should be shipped immediately to SGS AXYS (see section 7). Samples will be frozen there on arrival.

### *Field Sampling Form*

For all sampling events, fill out the associated (sewershed, influent/effluent, or biosolids) field sampling form shown in Appendix B. The information requested specifically relates to each sampling event including sampling equipment used, procedures followed, and daily conditions at the POTW. Field sampling forms will be sent as excel files to each facility and include sampling IDs. The form may be completed after each sampling event and once all information requested is available. Please send completed forms to diana@sfei.org and miguelm@sfei.org.

## 5.4 Matrix-Specific Guidelines

### Composite Sampling

Overall, influent/sewershed and effluent samples should be collected as 24-hour composites, when possible, using autosamplers. If possible, new tubing should be used for each sampling event. Automatic samplers should be decontaminated or the strainer replaced between each sampling event. Record if tubing and strainers were decontaminated prior to use or new in the field sampling form. HDPE containers can be filled directly from the autosampler or poured from a PFAS-free container where a larger composite is collected.

Weekend flow patterns at POTWs tend to be different from weekday flow patterns due to differences in activities from the serviced population, so samples should be collected during the weekday unless specified otherwise. (Two representative weekend samples will be collected from residential sewershed samples to evaluate potential differences between weekday and weekend PFAS flow patterns).

#### *Influent*

Influent samples should be collected at a location and in a manner that is representative of all influent received by the facility prior to treatment. Influent samples should be collected in a well-mixed location prior to primary settling, which include but are not limited to the headworks of the inlet to the grit chamber or prior to any biological treatment. If possible, samples should be collected after bar screening and grit removal but before fine screening to obtain a representative influent sample. Please note any treatment processes before the influent sampling location in the field sampling form. The sampling location is also marked in the facility diagrams in Appendix C.

Each sample will be collected in six containers (i.e., 4 x 125 mL, 2 x 60 mL). The target and AOF sample size is 125 mL. TOP analysis sample size is 60 mL. The second container for each size is collected as a backup. Extra HDPE containers will be provided, particularly if needed to pour off into smaller sample container. Containers should be filled to 80-90% capacity (providing 10-20% volume headspace) to allow for expansion during freezing.

#### *Effluent*

Effluent should be collected at a location and in a manner that is representative of final effluent discharged to receiving waters. Each sample will be collected in six containers (i.e., 2 x 500 mL, 2 x 60 mL, 2 x 125 mL). Target analysis will be conducted using the 500 mL sample. TOP analysis will be conducted on the 60 mL container. AOF will be conducted on the 125 mL container. The second container for each size is collected as a backup. Extra HDPE containers will be provided, particularly if needed to pour off into a smaller sample container. Containers should be filled to 80-90% capacity (providing 10-20% volume headspace) to allow for expansion during freezing.

### *Sewershed*

Sewershed samples should be collected at a location and in a manner that is representative of the discharge of specific industries or residential sectors to POTWs. If possible and information is available to make the determination, sewershed samples should be collected at times when PFAS discharge concentrations would be expected to be highest. This is particularly important if grab samples will be collected (see below).

Sewershed samples will be collected similarly to influent samples and collected in four containers (i.e., 2 x 125 mL, 2 x 60 mL). The target sample size is 125 mL. TOP analysis sample size is  60 mL. The second container for each size is collected for backup. Extra HDPE containers will be provided, particularly if needed to pour off into s smaller sample container. Containers should be filled to 80-90% capacity (providing 10-20% volume headspace) to allow for expansion during freezing.

### *Groundwater*

At groundwater wells, depth to water and total depth should be measured to determine the volume of water in the well. Most importantly, sample collection should be at the center of the well screen. Field parameters including temperature, electrical conductivity, pH, and turbidity should be measured and noted on the field sample form along with the method used for purging. Groundwater samples will be collected similarly to effluent samples and collected in six containers (i.e. 2 x 500 mL, 2 x 60 mL). Target analysis will be collected using the 500 mL sample. TOP analysis will be conducted on the 60 mL container. The second container for each size is collected for backup. Please indicate in the field sample form if these are collected as composite or grab samples.

Extra HDPE containers will be provided, particularly if needed to pour off into s smaller sample container. Containers should be filled to 80-90% capacity (providing 10-20% volume headspace) to allow for expansion during freezing.

### *Field Replicate*

A field replicate is a replicate or split sample collected in the field concurrently with the parent sample and submitted to the laboratory as one of two or more different field samples. Field replicates are intended to capture the temporal and spatial heterogeneity of the sampled location and matrix (e.g., the variation of sampling a specific moment and point, rather than 1 minute later or 1 meter away).

Influent and effluent field replicates will be collected in HDPE containers provided by SGS AXYS using the same procedures as in the sections above. While the ideal field replicate would be sampled on the same day but from different sips from the composite sampler or from a different compositer, participation POTWs indicate that this is not practical at most sampling sites. Therefore, field replicates for aqueous samples (i.e. sewershed/influent, effluent) will be split samples poured from a larger composite bottle on the same day, making sure the larger composite bottle is well-mixed and

homogenized before pouring. This is to prevent gross differences in solids content and their associated PFAS in field replicates.

Solid sample field replicates (i.e., biosolids, undigested feed, trucked food waste) should come from different grab samples from the same day.

### *Laboratory replicates*

Laboratory replicates are repeated analysis of a separate portion of a sample taken through the extraction and analysis procedure. This characterizes the combined impact of variations in subsampling homogeneity, extraction efficiency, and analytical quantitation. Where possible, lab replicates should be generated by subsampling the same container. While generating lab replicates from homogenized solid samples is possible, this is not feasible for aqueous samples for PFAS analysis. This is because the analytical method requires the entire sample plus bottle rinsate to be extracted as a single sample (DoD QSM 5.4; Draft EPA 1663; MLA-110).

Where the analysis requires the entire volume or mass of a sample container, lab replicates should be created from separately collected samples that are expected or have previously been demonstrated to be nearly identical (e.g., simultaneous collection, or composites with minimal separation in time of A-B aliquots). Unlike extra volume collected for field replicates, samples for lab replicates should **never** be collected as sequential grabs, nor from separate points (even if ostensibly similar) in a facility. Even in cases where a sample is normally collected as a grab, containers for lab replicates should be made from short term composites such as alternating ¼ fills of replicate bottles. We have not yet demonstrated that separately collected samples in the field will have nearly identical PFAS concentrations, and there is no perfect way to make the samples uniform.

Laboratory replicates for aqueous samples may be generated using reagent water.

### *Matrix Spike (MS) and Matrix Spike Duplicate (MSD)*

Matrix spikes samples are field samples to which known amounts of target analytes are added, indicating potential matrix bias present in field samples and errors and losses in analyses not accounted for by isotope dilution / recovery correction (MLA-110).

Similar to the case for lab replicates, analytical laboratory subsample from a single larger field sample to generate parent/MS/MSD sets for solid samples, but this is not possible for aqueous samples.

Specified POTWs will collect additional sample volume for the MS/MSD similar to a field replicates, and as much as possible collect sample to be as identical as possible. SFEI will work with SGS AXYS and sample collection agencies to select samples used as parent/MS/MSD sets, which should be 24-hour composites (rather than grabs) for these QC sample sets. The reason for using composite samples for the parent/MS/MSD sets is to reduce heterogeneity among the samples. Spiking of separate samples with

unknown variability may cause erroneous estimates of recovery. Generating MS/MSDs from uncomposited separate containers should only be considered in cases where compositing is impossible, and variability of simultaneously collected samples has been previously demonstrated to be small. Evaluation of parent/MS/MSD results should consider possible variability among samples.

### *Field Blank*

The field blank is collected to verify that the ambient sampling environment does not introduce PFAS and cross-contaminate samples during the sampling event. The field blank is collected by opening a container of PFAS-free water (provided by the analytical lab), and pouring 500 mL into a sample container in the same location that field samples are collected. The field blank is treated the same throughout field and laboratory procedures as other collected field samples. A field blank will be collected at specific sites to be representative of typical POTW sampling environments.

### *Equipment Rinse Blank*

The equipment rinse blank is collected to evaluate potential contamination from equipment used during sampling, including automated samplers used to collect aqueous samples, and scoops used to collect biosolids. Generally, the equipment rinse blank is collected prior to sample collection by rinsing the decontaminated sampling equipment with PFAS-free water (provided by the analytical lab) and collecting the rinsate into a sample container.

If a larger composite container is used to collect samples prior to pouring into the sample container, the composite container should also be rinsed. For automatic samplers, equipment blanks are collected from a final rinse by passing PFAS-free reagent water (provided by the analytical lab) over or through field sampling equipment (i.e., tubing) before the collection of samples. Each equipment blank should fill up to 450 mL in the provided HDPE containers. The equipment rinse blank is treated the same throughout field and laboratory procedures as other collected field samples. Equipment blanks will be collected to be representative of typical POTW sampling environments.

## Grab Sampling

Groundwater and biosolids samples will be definitively collected by grab sampling, with aqueous samples only collected as grab samples when composite sampling is not possible. Various types of immersion sampling equipment may be used for grab sampling. Equipment used must be PFAS-free (see section 4.1), new or decontaminated (see section 4.2), and may include extension rods to immerse the laboratory sample bottle at the sample location, cable ties, beakers, and peristaltic pumps with tubing that extends into the wastewater. Samples will be directly collected in the appropriate HDPE bottles provided by SGS AXYS. If this is not possible, a container made of a known PFAS-free material (examples of allowable materials listed above) may be used to pour into the HDPE bottles. Alternatively, a sampling port or pump may also be used.

Weekend flow patterns at POTWs tend to be different from weekday flow patterns due to differences in activities from the serviced population, so samples should be collected during the weekday.

Field replicates should be collected in the same way as the original sample and submitted to the laboratory as two different samples. Blank samples are collected in a similar manner as described in the composite sampling section above.

Sampling locations for all facilities are shown in process diagrams in Appendix C. Please document the use of any equipment or materials that come in direct contact with the sample and any change in sampling location in the field sampling form.

***Biosolids Samples***

Biosolids samples should be collected from the final step in the treatment process at each facility to represent the final product (highest solids content possible) that is produced and removed from each POTW. If liquids are present, a representative whole sample aliquot that includes both liquid and solid fractions should be collected.

Samples should be collected in a way that is representative of biosolids produced by the facility. A single grab sample is appropriate if collected from a well-mixed treatment process. The 250 mL HDPE containers should be filled half-way (125 mL) by directly pouring or scooping from a well mixed location. If biosolids piles are heterogeneous, several grab samples may be collected and composited to create a representative sample of biosolids. The analytical lab will homogenize the sample prior to analysis. Please note the sampling method in the field sampling form.

Undigested feed and trucked food waste should also be collected in a way that is representative of material processed at the facility. Undigested feed could be collected as a composite of 4 grab samples collected 15 minutes apart.

# 6. Sample Labeling

The sample ID system used for the PFAS POTW analytical samples is as follows:

Facility Acronym - Matrix - Unique Number

- Facility Acronym = CCCSD (Central Contra Costa Sanitary District), CSM (City of San Mateo), EBMUD (East Bay Municipal Utilities District, SFPUCOS (Oceanside Water Pollution Control Plant, San Francisco), SFPUCSE (Southeast Water Pollution Control Plant, San Francisco), SJSC (San Jose-Santa Clara), DSRSD (Dublin San Ramon Sanitary District),

- Matrix = INF (Influent), EFF (Effluent), BIO (Biosolids), BF (Blended Feed), FW (Food Waste), RS (Residential sewershed), IS (Industrial Sewershed), Groundwater (GW)
    - Field Blanks: FBINF (Field Blank Influent), FBS (Field Blank Residential/Industrial Sewershed), FBBIO (Field Blank Biosolids)
    - Equipment Rinse Blanks: EBINF (Equipment Rinse Blanks Influent), EBBIO (Equipment Rinse Blanks Biosolids),

- Unique Number = SFEI assigned number for each sample, see Sample ID list in Appendix A.
    - All samples ended with the same last 2 digits were collected from the sample field sample composite (e.g. 0001, 1001, 2001)
    - Samples starting with "0" are for Taget analysis (e.g. 0001, 0002)
    - Sample starting with "1,000" are back-up samples for Target analysis (e.g. 1001, 1002)
    - Samples starting with "2,000" are for TOP analysis (e.g. 2001, 2002)
    - Samples starting with "3,000" are back-up samples for TOP analysis (e.g. 3001, 3002)
    - Samples starting with "4,000" are for AOF analysis (e.g, 4001, 4002)
    - Samples starting with "5,000" are back-up samples for AOF analysis (e.g. 5001, 5002)
    - Samples starting with "6,000" are solid samples for Target and TOP analysis (e.g. 6001, 6002)

**Example:** CCCSD-RS-001

Every sample will be labeled with a unique sample ID following this system; note that replicates (except for blind replicates), containers intended for different analyses, and backup samples will have the same Sample ID as requested by the analytical laboratory. See Appendix A for a full list of sample IDs expected from each facility. The sample ID should be recorded on the field sampling form, including information about the sample location, sample date, collection method (composite or grab).

# 7. Sample Handling and Custody

Chain of custody (COC) records will be maintained throughout the course of the sampling effort. SFEI will provide pre-filled COC forms for each facility listing the expected samples collected and indicate the requested laboratory analysis for each sample. We recommend samples be frozen at the POTW until they are ready to be shipped to the analytical laboratory. We recommend samples be frozen at the POTW, and shipped when after all samples for each POTW are ready (no need to coordinate among all POTWs). Samples can be shipped to the laboratory in separate batches if there is insufficient storage at the POTW. Influent, effluent, and biosolid samples collected at the POTW facility may be shipped as one batch to the analytical laboratory when complete. Each participating facility will complete the COC form by filling out any missing information, include the original form with the sample shipment, and provide an electronic copy of the form to SFEI at the time of the shipment.

Samples must be chilled during storage and shipment. It is preferred for samples to be frozen (below 0°C) as soon as possible at the facility until samples can be shipped to SGS AXYS in batches. Once frozen, hold time is one year for the biosolids and 90 days for aqueous matrices (influent, effluent, sewershed, and groundwater). Otherwise, the samples should be shipped immediately to the analytical laboratory, where they will be frozen when they arrive. SGS AXYS will begin analysis when samples are released for analysis by SFEI. SFEI will coordinate with SGS AXYS to specify sample analysis batches. SFEI expects to receive final analytical results within eight weeks of receiving the last field sample and samples are released for analysis.

When preparing samples for shipment, it is recommended to double-bag samples (especially influent) using PFAS-free bags. HDPE bags are preferred, though LDPE bags may be used if they do not come into direct contact with the sample media. As much double-bagged wet ice as will fit in the cooler should be used for transporting and shipping liquid and frozen samples. Chemical or blue ice should not be used.

Samples must be shipped by FEDEX priority overnight service on Monday, Tuesday, or Wednesday to avoid any issues with weekend shipping. As this is an international shipment, a commercial invoice (CI) is needed. The CI will be partially completed by SGS AXYS and sent together with the PFAS field sampling kit, which will also include specific facility packaging and shipping instructions (also found in Appendix D). Both SFEI (diana@sfei.org; miguelm@sfei.org) and SGS AXYS (Sean.Campbell@sgs.com) should be included in any FedEx shipment notifications.

# 8. Laboratory Analytical Methods

Aqueous (influent/sewershed, effluent, groundwater, field blanks, equipment blanks) and solids (biosolids, undigested feed, trucked food waste) samples will be analyzed for PFAS with LC-MS/MS by EPA Method 1633 (SGS AXYS Method MLA 110 [Target PFAS]. The target analytes and reporting limits (Table 8.1) are consistent with the analytical method conducted in the Phase 1 study (Mendez et al., 2020). Biosolids samples will also be analyzed for Percent Solids. Aqueous samples will be reported in units of ng/L; biosolid samples will be reported in units of ng/g dry weight, and percent solids content (%).

Additionally, all field samples will be analyzed by LC-MS/MS after oxidation of PFAS precursors to terminal PFAS (SGS AXYS Method MLA-111 [TOP or Total Oxidizable Precursors analysis]). The target analytes and reporting limits (Table 8.2) are consistent with the method conducted in the Phase 1 study (Mendez et al., 2020). TOP analysis is used to evaluate the presence of precursors (specifically precursors that will oxidize to terminal perfluorinated carboxylates) that may not be included in the target analyte list. TOP samples are analyzed after oxidation using heat activated persulfate at high alkaline pH. Results from the Phase 1 study indicated that the sum of PFAS measured via TOP was significantly greater than sum of PFAS measured via Target method in influenced and biosolid samples. Effluent samples were not analyzed using the TOP method in the Phase 1 study. Therefore, including TOP analysis is important for quantifying a greater portion of the total PFAS present in aqueous and solid samples, and results will be used to compare PFAS levels across samples and matrices.

Influent and effluent samples will also be analyzed via Adsorbable Organofluorine Analysis (AOF). The method description and reporting limits are not yet available, and will be included as an Appendix E when available. Briefly, the sample is passed through an activated carbon column that adsorbs organic material including PFAS. Inorganic fluorine salts are removed by rinsing the column with neutral nitrate solution. The remaining AC column is subjected to the combustion process and ion chromatography is used to measure the total organic fluorine in the sample. AOF is used as a screening measure of “worst-case” measurement of possible PFAS in the sample and compare results to TOP and target results (which will be converted to total organic fluorine for comparison). Results should be interpreted cautiously because results may be influenced by fluorine from non-PFAS compounds. This method is only applicable for aqueous samples with limited solids content, and methods for analyzing solids sample and total fluorine are in development by SGS AXYS.

The method information including analytical list, reporting limits, and laboratory QA/QC measures can be directly obtained from SGS AXYS. Analytical SOPs will be requested from the laboratory and stored at SFEI, but will not be released to external parties without prior consent of the laboratory.

**Table 8.1.** Target PFAS analyte list (USEPA Method 1633 [MLA-110, SGS AXYS]) including reporting limits (RLs) for aqueous and biosolid samples.

| Abbreviation | Geotracker PARLABEL | PFAS Chemical Name | Aqueous DLs * (ng/L) | Aqueous RLs* (ng/L) | Biosolids DLs* (ng/g) | Biosolids RLs* (ng/g) |
|---|---|---|---|---|---|---|
| PFBA | PFTBA | Perfluorobutanoic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| PFPeA | PFPA | Perfluoropentanoic acid | 0.8 | 3.2 | 0.8 | 3.2 |
| PFHxA | PFHA | Perfluorohexanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFHpA | PFHPA | Perfluoroheptanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFOA | PFOA | Perfluorooctanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFNA | PFNA | Perfluorononanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFDA | PFNDCA | Perfluorodecanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFUnA | PFUNDCA | Perfluoroundecanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFDoA | PFDOA | Perfluorododecanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFTrDA | PFTRIDA | Perfluorotridecanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFTeDA | PFTEDA | Perfluorotetradecanoic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFBS | PFBSA | Perfluorobutanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFPeS | PFPES | Perfluoropentanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFHxS | PFHXSA | Perfluorohexanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFHpS | PFHPSA | Perfluoroheptanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFOS | PFOS | Perfluorooctanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFNS | PFNS | Perfluorononanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |

| Abbreviation | Geotracker PARLABEL | PFAS Chemical Name | Aqueous DLs * (ng/L) | Aqueous RLs* (ng/L) | Biosolids DLs* (ng/g) | Biosolids RLs* (ng/g) |
|---|---|---|---|---|---|---|
| PFDS | PFDSA | Perfluorodecanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| PFDoS | - | Perfluorododecanesulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| 4:2 FTS | 4:2FTS | 1H, 1H, 2H, 2H-perfluorohexane sulfonic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| 6:2 FTS | 6:2FTS | 1H, 1H, 2H, 2H-perfluorooctane sulfonic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| 8:2 FTS | 8:2FTS | 1H, 1H, 2H, 2H-perfluorodecane sulfonic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| 3:3 FTCA | 3:3FTCA | 2H, 2H, 3H, 3H-perfluorohexanoic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| 5:3 FTCA | 5:3FTCA | 2H, 2H, 3H, 3H-perfluorooctanoic acid | 10 | 40 | 10 | 40 |
| 7:3 FTCA | 7:3FTCA | 2H, 2H, 3H, 3H-perfluorodecanoic acid | 10 | 40 | 10 | 40 |
| PFOSA | PFOSA | Perfluorooctanesulfonamide | 0.4 | 1.6 | 0.4 | 1.6 |
| N-MeFOSA | MEFOSA | N-Methylperfluorooctanesulfonamide | 0.4 | 1.6 | 0.4 | 1.6 |
| N-EtFOSA | ETFOSA | N-Ethylperfluorooctanesulfonamide | 0.4 | 1.6 | 0.4 | 1.6 |
| N-MeFOSAA | NMEFOSAA | N-Methylperfluoro-1-octanesulfonamidoacetic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| N-EtFOSAA | NETFOSAA | N-Ethylperfluoro-1-octanesulfonamidoacetic acid | 0.4 | 1.6 | 0.4 | 1.6 |
| N-MeFOSE | MEFOSE | N-Methylperfluoro-1-octanesulfonamidoethanol | 4 | 16 | 4 | 16 |
| N-EtFOSE | ETFOSE | N-Ethylperfluoro-1-octanesulfonamidoethanol | 4 | 16 | 4 | 16 |
| HFPO-DA (GenX) | HFPO-DA | 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoro -propoxy)propionic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| ADONA | ADONA | Decafluoro-3H-4,8-dioxanonoate | 1.6 | 6.4 | 1.6 | 6.4 |
| NFDHA | NFDHA | Perfluoro-3,6-dioxaheptanoate | 0.8 | 3.2 | 0.8 | 3.2 |
| PFMBA | PFMBA | Perfluoro-3-methoxypropanoate | 0.4 | 1.6 | 0.4 | 1.6 |

| Abbreviation | Geotracker PARLABEL | PFAS Chemical Name | Aqueous DLs * (ng/L) | Aqueous RLs* (ng/L) | Biosolids DLs* (ng/g) | Biosolids RLs* (ng/g) |
|---|---|---|---|---|---|---|
| PFMPA | PFMPA | Perfluoro-4-methoxybutanoate | 0.8 | 3.2 | 0.8 | 3.2 |
| 9Cl-PF3ONS | 9-Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| 11Cl-PF3OUdS | 11-Cl-PF3OUdS | 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 1.6 | 6.4 | 1.6 | 6.4 |
| PFEESA | PFEESA | Perfluoro(2-ethoxyethane)sulfonic acid | 0.4 | 1.6 | 0.4 | 1.6 |

* Detection limits (DL) and Reporting Limits (RL) are prorated to sample size. DLs and RLs shown are based on a standard sample size of 0.5L for aqueous and 0.5g for biosolids.

**Table 8.2.** TOP PFAS analyte list (MLA-111, SGS AXYS) including reporting limits (RLs) for aqueous samples.

| Abbreviation | PFAS Chemical Name | Aqueous RLs* (ng/L) |
|---|---|---|
| PFBA | Perfluorobutanoate | 13.3 |
| PFPeA | Perfluoropentanoate | 6.7 |
| PFHxA | Perfluorohexanoate | 3.3 |
| PFHpA | Perfluoroheptanoate | 3.3 |
| PFOA | Perfluorooctanoate | 3.3 |
| PFNA | Perfluorononanoate | 3.3 |
| PFDA | Perfluorodecanoate | 3.3 |
| PFUnA | Perfluoroundecanoate | 3.3 |
| PFDoA | Perfluorododecanoate | 3.3 |
| PFTrDA | Perfluorotridecanoate | 3.3 |
| PFTeDA | Perfluorotetradecanoate | 3.3 |
| PFBS | Perfluorobutanesulfonate | 3.3 |

| Abbreviation | PFAS Chemical Name | Aqueous RLs* (ng/L) |
|---|---|---|
| PFPeS | Perfluoropentanesulfonate | 3.3 |
| PFHxS | Perfluorohexanesulfonate | 3.3 |
| PFHpS | Perfluoroheptanesulfonate | 3.3 |
| PFOS | Perfluorooctanesulfonate | 3.3 |
| PFNS | Perfluorononanesulfonate | 3.3 |
| PFDS | Perfluorodecanesulfonate | 3.3 |
| PFDoS | Perfluorododecanesulfonate | 3.3 |
| 4:2 FTS | 4:2 fluorotelomersulfonate | 13.3 |
| 6:2 FTS | 6:2 fluorotelomersulfonate | 13.3 |
| 8:2 FTS | 8:2 fluorotelomersulfonate | 13.3 |
| N-MeFOSAA | N-Methylperfluorooctanesulfonamidoacetic acid | 3.3 |
| N-EtFOSAA | N-Ethylperfluorooctanesulfonamidoacetic acid | 3.3 |
| PFOSA | Perfluorooctanesulfonamide | 3.3 |
| N-MeFOSA | N-Methylperfluorooctanesulfonamide | 3.3 |
| N-EtFOSA | N-Ethylperfluorooctanesulfonamide | 3.3 |
| N-MeFOSE | N-Methylperfluorooctanesulfonamidoethanol | 33.3 |
| N-EtFOSE | N-Ethylperfluorooctanesulfonamidoethanol | 33.3 |

*Reporting limits (RL) shown are based on standard sample size of 0.060L.

# 9. Quality Control Requirements

This SAP includes analysis of some samples that have not been widely analyzed for PFAS, such as the trucked food waste and sewershed samples. Application of the following QA/QC requirements have been developed for more typical sample matrices, such as influent, effluent, and biosolids. While the following QA/AC criteria will be applied to all samples, interpretation should consider that many samples are not typical and have unknown PFAS levels and variability.

**Field Quality Control Samples**

The field blank is collected to verify that the ambient sampling environment does not introduce PFAS and cross-contaminate samples during the sampling event. Additionally, the equipment rinse blank is collected to evaluate potential contamination from equipment used during sampling, including automated samplers used to collect aqueous samples and scoops used to collect biosolids. Sampling instructions for the field blank and equipment rinse blank are described above (Section 5.4). The field blank and equipment blank will be analyzed using target PFAS analysis (MLA-110) and TOP analytical methods (MLA-111).

Influent/effluent and biosolid field replicates and field blanks are collected from one POTW. Field quality control samples are meant to be representative for all participating facilities. Field blanks and field replicates are also included for sewershed samples. The results are meant to provide some measure of potential contamination and variability from similar locations, but may not be representative of all industries sampled.

At a minimum, sample results will be evaluated using the RMP Quality Assurance Program Plan (QAPP) (Yee et al., 2019).

**Laboratory Quality Control Procedures**

Laboratory QC measures for MLA-110 (target analyses) will comply with QA/QC criteria specified in Draft EPA method 1633 and/or DoD Table B-24 of Quality Systems Manual (QSM), version 5.4. Samples will be analyzed in batches containing 7-20 samples per matrix. The batch is carried through the complete analytical process as a unit. For sample data to be reportable, the batch QC data must meet the established acceptance criteria tabulated in the laboratory's operating procedures or be narrated using professional judgment regarding the impact of the data, after consultation with SFEI. At a minimum, each analytical batch should include the following, which is consistent with draft EPA method 1633 and DoD QSM 5.4 Table 24-B. Target recoveries for Ongoing Precisions and Recovery Standards (OPR) should meet specifications in draft EPA method 1633 and MLA-110, and summarized below briefly.

1. **Method Blank:** Method/Procedural Blanks are samples of a clean (PFAS-free reagent water) taken through the entire analytical procedure, including

preservatives, reagents, and equipment used in preparation and quantitation of analytes in samples.

2. **Laboratory Control Sample or Ongoing Precision and Recovery (OPR) Quality Control Samples**: OPR are blanks spiked with native analytes at concentration at mid-level calibration concentration; LLOPR are low-level OPRs spiked at 2X the LOQ. Sample is created by the laboratory as from clean matrix reference samples, sufficiently homogeneous and stable for target analytes to track performance across batches. For TOP analysis, isotope labeled extraction standards (terminal carboxylates and sulfonates) and a isotope labeled oxidation monitoring standard is included. The isotope labeled labeled extraction standard contains C4-C14 carboxylates and C4-C11 and C12 sulfonates to each sample matrix. During the oxidation procedure, the model precursors in the OPR react to form terminal perfluorinated acids, and conversion (disappearance) to terminal products is monitored. Recovery values of the perfluorinated acids spiked plus the predicted reaction products are determined to quantify recovery and used as indication of overall method conversion completeness; see the tables below for acceptance ranges. SGS AXYS MLA-111 contains QC acceptance criteria including method blank, OPR, duplicate, and conversion monitoring.

3. **Surrogate (or internal) Standards**: Labeled isotopes of target compounds (direct analogues or compounds of similar behavior and chemistry) introduced to samples to measure and correct for matrix bias, losses, and errors. Recoveries and corrections to reported values are reported for each sample individually.

4. **Lab Replicates**: Repeated analysis of a separate portion of a sample taken through the extraction and analysis procedure. This characterizes the combined impact of variations in subsampling homogeneity, extraction efficiency, and analytical quantitation. Generally these are generated from subsamples of a larger sample, which will be done for solid (i.e., biosolids, undigested digester feed, trucked food waste) samples. Since target PFAS analysis (draft EPA 1633) requires the entire sample volume and rinseate be analyzed for each aqueous sample, additional sample volume from the same field composite will be collected into separate sample containers. SGS AXYS may decide if compositing sample volumes to produce a lab replicate is appropriate. Since the variation in field generated splits or composites taken in lieu of lab replicates is currently not known, it is recognized that RPD targets for lab replicates may not always be routinely achievable; re-analysis is not expected even if there are larger RPDs among field generated splits or replicates.

5. **Matrix Spike and Matrix Spike Duplicates (MS/MSDs):** MS/MSDs are usually field samples to which known amounts of target analytes are added, indicating potential matrix bias present in field samples and errors or losses in analyses not accounted for by surrogate or internal standard correction. Where possible these should be generated from subsamples of a larger volume to obtain the

concentration of analytes in the unspiked sample, although solids distribution and container wall losses may be variables.

Since target PFAS analysis (draft EPA 1633) requires the entire sample volume and rinseate be analyzed for each aqueous sample, additional sample volume from the same field composite will be collected into separate sample containers. SGS AXYS may decide if compositing sample volumes to produce parent/MS/MSD samples is appropriate. Since the variation in field generated splits or composites taken in lieu of lab replicates is currently not known, it is recognized that RPD targets may not be routinely achievable, and results should be interpreted using professional judgment.

Adsorbable organofluorine analysis results will also include the above QC criteria, unless otherwise specified by SGS AXYS.

# 10. Data Management

SFEI will request information about the field sampling parameters from each facility in the field sampling form. SFEI will use the information provided by the facility to fill out the appropriate CEDEN/electronic data format.

SGS AXYS will provide data to SFEI in the appropriate CEDEN/electronic data format templates (as provided by SFEI) within the timeframe stipulated in the contract (8 weeks from release of all samples for analyses). SGS AXYS should use the current on-line data checker to review data for vocabulary and business rule violations prior to submitting to SFEI using the SFEI Data Submittal Portal https://rdcdataupload.sfei.org/ (contact DS@sfei.org for the current login and password). SFEI will work with the laboratory to address vocabulary and business rule issues identified from using the data checker.

SFEI will require data to be corrected and resubmitted if any of the following issues are encountered:

- Data submittal is missing target analytes listed in the contract
- Missing field or QA/QC sample results
- Results not reported in the units and basis requested in the contract
- Field and QC samples not reported in equivalent units and basis for a given analyte.

The QA officer (QAO) or designee will review the data for quality assurance and quality control and appropriate QA codes will be applied to the dataset. The QAO or designee writes a report for each dataset outlining the quality of the data. This report highlights any issues that need to be addressed by the laboratory, project manager, or data management staff.

# 11. Reporting

## 11.1 Influent, Effluent, Biosolids, and Groundwater Reporting to Geotracker

SFEI will upload an Electronic Data Format (EDF) of analytical results for influent, effluent, biosolid, and groundwater results from EPA method 1633 (SGS AXYS MLA-110 [target PFAS]) to the State Water Board's GeoTracker system on behalf of BACWA and participating POTWs. Only target PFAS analytical results for influent, effluent, biosolids, and groundwater will be uploaded to GeoTracker. POTWs will be responsible for providing SFEI the POTW's Geotracker Global ID and Field Point Names associated with the study. (Analytical results from MLA-111 (TOP) and MLA-119 (AOF) will not be uploaded to avoid misinterpretation of the results).

SFEI will develop one monitoring report summarizing the influent, effluent, biosolid, and groundwater results from the six participating facilities. The monitoring report will be uploaded to GeoTracker's ESI portal on behalf of each facility. The monitoring report will include a QA/QC evaluation from the QA officer, and any deviations from the SAP. Laboratory reports and Chain of Custody forms will be included in Appendices and uploaded as separate PDF files.

## 11.2 Summary Report

SFEI will analyze, synthesize all data from this SAP in a technical report combined with Phase 1 data results. Results will be interpreted in the context of published studies, including monitoring data from state-wide POTW wastewater data sources (if synthesized and published) and a few relevant published references.

# 12. Data Validation and Usability

Data quality objectives for field and laboratory measurements evaluate the following:

- Field measurements – sensitivity, precision, accuracy, completeness
- Laboratory chemical analyses – sensitivity, precision, accuracy, completeness, contamination

SFEI staff will examine the data set for completeness (e.g., correct numbers of samples and analyses, appropriate QC sample data included) and accuracy (e.g., in sample IDs). The SFEI QAO or designee will examine submitted target PFAS QA data for conformance with MQOs, specified in DoD Table B-15 of Quality Systems Manual (QSM), version 5.4 (Department of Defense (DOD) and Department of Energy (DOE), 2019). Data that are incomplete, inaccurate, or failing MQOs without appropriate explanation will be referred back to the laboratory for correction or clarification. The QAO will discuss data failing MQOs with laboratory staff to determine whether modifications to analytical methods can be made to improve results on reanalysis. If problems cannot be readily corrected (insufficient sample, irremovable interferences, or blank contamination based on past attempts with the lab), results outside the MQOs may be flagged to alert data users to uncertainties in quantitation. Results will not be censored.

# 13. References

Barnes, N., Fortes, F., He, Z., Folsom, S., 2021. Florida Statewide PFAS Pilot Study at Dry Cleaning Sites. Florida Department of Environmental Protection, HSW Consulting, Tallahassee, Florida.

Bartlett, S.A., Davis, K.L., 2018. Evaluating PFAS cross contamination issues. Remediat. J. 28, 53–57. https://doi.org/10.1002/rem.21549

California State Water Resources Control Board, 2020. Per- and Polyfluoroalkyl Substances (PFAS) Sampling Guidelines for Non-Drinking Water.

Clara, M., Scharf, S., Weiss, S., Gans, O., Scheffknecht, C., 2008. Emissions of perfluorinated alkylated substances (PFAS) from point sources—identification of relevant branches. Water Sci. Technol. 58, 59–66. https://doi.org/10.2166/wst.2008.641

Department of Defense (DOD), Department of Energy (DOE), 2019. DOD/DOE Consolidated Quality Systems Manual (QSM) for Environmental Laboratories (DoD Quality Systems Manual Version 5.3).

Herkert, N.J., Kassotis, C.D., Zhang, S., Han, Y., Pulikkal, V.F., Sun, M., Ferguson, P.L., Stapleton, H.M., 2022. Characterization of Per- and Polyfluorinated Alkyl Substances Present in Commercial Anti-fog Products and Their In Vitro Adipogenic Activity. Environ. Sci. Technol. 56, 1162–1173. https://doi.org/10.1021/acs.est.1c06990

Herzke, D., Olsson, E., Posner, S., 2012. Perfluoroalkyl and polyfluoroalkyl substances (PFASs) in consumer products in Norway – A pilot study. Chemosphere 88, 980–987. https://doi.org/10.1016/j.chemosphere.2012.03.035

Kim Lazcano, R., Choi, Y.J., Mashtare, M.L., Lee, L.S., 2020. Characterizing and Comparing Per- and Polyfluoroalkyl Substances in Commercially Available Biosolid and Organic Non-Biosolid-Based Products. Environ. Sci. Technol. 54, 8640–8648. https://doi.org/10.1021/acs.est.9b07281

Langberg, H.A., Arp, H.P.H., Breedveld, G.D., Slinde, G.A., Høiseter, Å., Grønning, H.M., Jartun, M., Rundberget, T., Jenssen, B.M., Hale, S.E., 2021. Paper product production identified as the main source of per- and polyfluoroalkyl substances (PFAS) in a Norwegian lake: Source and historic emission tracking. Environ. Pollut. 273, 116259. https://doi.org/10.1016/j.envpol.2020.116259

Mendez, M., Lin, D., Sutton, R., 2020. Study of Per- and Polyfluoroalkyl Substances in Bay Area POTWs: Phase 1 Sampling and Analysis Plan (No. SFEI Contribution # 1020). San Francisco Estuary Institute, Richmond, CA.

Mendez, M., Wong, A., Lin, D., 2021. Study of Per- and Polyfluoroalkyl Substances (PFAS) in Bay Area POTWs: Phase 1 Monitoring Report. SFEI, Richmond, CA.

Michigan Department of Environmental Quality, 2018. General PFAS Sampling Guidance.

Rodowa, A.E., Christie, E., Sedlak, J., Peaslee, G.F., Bogdan, D., DiGuiseppi, B., Field, J.A., 2020. Field Sampling Materials Unlikely Source of Contamination for Perfluoroalkyl and Polyfluoroalkyl Substances in Field Samples. Environ. Sci. Technol. Lett. 7, 156–163. https://doi.org/10.1021/acs.estlett.0c00036

# Appendix A: Sample ID List

## Appendix A: Final Sample ID List (date 3/28/2022)

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| CCCSD | IS | 0021 | CCCSD-IS-0021 | HDPE 125 mL | Target | Hospital | John Muir Medical Center, Sample Point 1 | |
| CCCSD | IS | 1021 | CCCSD-IS-1021 | HDPE 125 mL | Backup | Hospital | John Muir Medical Center, Sample Point 1 | |
| CCCSD | IS | 2021 | CCCSD-IS-2021 | HDPE 60 mL | TOP | Hospital | John Muir Medical Center, Sample Point 1 | |
| CCCSD | IS | 3021 | CCCSD-IS-3021 | HDPE 60 mL | Backup | Hospital | John Muir Medical Center, Sample Point 1 | |
| CCCSD | IS | 0105 | CCCSD-IS-0105 | HDPE 125 mL | Target | Hospital | John Muir Medical Center, Sample Point 2 | |
| CCCSD | IS | 1105 | CCCSD-IS-1105 | HDPE 125 mL | Backup | Hospital | John Muir Medical Center, Sample Point 2 | |
| CCCSD | IS | 2104 | CCCSD-IS-2104 | HDPE 60 mL | TOP | Hospital | John Muir Medical Center, Sample Point 2 | |
| CCCSD | IS | 3105 | CCCSD-IS-3105 | HDPE 60 mL | Backup | Hospital | John Muir Medical Center, Sample Point 2 | |
| CCCSD | IS | 0022 | CCCSD-IS-0022 | HDPE 125 mL | Target | Hospital 2 | San Ramon Regional Medical Center | |
| CCCSD | IS | 1022 | CCCSD-IS-1022 | HDPE 125 mL | Backup | Hospital 2 | San Ramon Regional Medical Center | |
| CCCSD | IS | 2022 | CCCSD-IS-2022 | HDPE 60 mL | TOP | Hospital 2 | San Ramon Regional Medical Center | |
| CCCSD | IS | 3022 | CCCSD-IS-3022 | HDPE 60 mL | Backup | Hospital 2 | San Ramon Regional Medical Center | |
| CCCSD | IS | 0025 | CCCSD-IS-0025 | HDPE 125 mL | Target | Industrial laundry | Nu West Textiles | |
| CCCSD | IS | 1025 | CCCSD-IS-1025 | HDPE 125 mL | Backup | Industrial laundry | Nu West Textiles | |
| CCCSD | IS | 2025 | CCCSD-IS-2025 | HDPE 60 mL | TOP | Industrial laundry | Nu West Textiles | |
| CCCSD | IS | 3025 | CCCSD-IS-3025 | HDPE 60 mL | Backup | Industrial laundry | Nu West Textiles | |
| CCCSD | RS | 0037 | CCCSD-RS-0037 | HDPE 125 mL | Target | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | Sample |
| CCCSD | RS | 1037 | CCCSD-RS-1037 | HDPE 125 mL | Backup | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | |
| CCCSD | RS | 2037 | CCCSD-RS-2037 | HDPE 60 mL | TOP | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | |
| CCCSD | RS | 3037 | CCCSD-RS-3037 | HDPE 60 mL | Backup | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | |
| CCCSD | RS | 0038 | CCCSD-RS-0038 | HDPE 125 mL | Target | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | Replicate |
| CCCSD | RS | 1038 | CCCSD-RS-1038 | HDPE 125 mL | Backup | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | |
| CCCSD | RS | 2038 | CCCSD-RS-2038 | HDPE 60 mL | TOP | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | |
| CCCSD | RS | 3038 | CCCSD-RS-3038 | HDPE 60 mL | Backup | Residential | Ruth Drive, Pleasant Hill – 47B5 M23.9 | |
| CCCSD | RS | 0039 | CCCSD-RS-0039 | HDPE 125 mL | Target | Residential | Rosincrest Drive, San Ramon – 102D3 M4 | |
| CCCSD | RS | 1039 | CCCSD-RS-1039 | HDPE 125 mL | Backup | Residential | Rosincrest Drive, San Ramon – 102D3 M4 | |
| CCCSD | RS | 2039 | CCCSD-RS-2039 | HDPE 60 mL | TOP | Residential | Rosincrest Drive, San Ramon – 102D3 M4 | |
| CCCSD | RS | 3039 | CCCSD-RS-3039 | HDPE 60 mL | Backup | Residential | Rosincrest Drive, San Ramon – 102D3 M4 | |
| CCCSD | RS | 0040 | CCCSD-RS-0040 | HDPE 125 mL | Target | Residential | Creekside Drive, Walnut Creek – 75C4 M10 | |
| CCCSD | RS | 1040 | CCCSD-RS-1040 | HDPE 125 mL | Backup | Residential | Creekside Drive, Walnut Creek – 75C4 M10 | |
| CCCSD | RS | 2040 | CCCSD-RS-2040 | HDPE 60 mL | TOP | Residential | Creekside Drive, Walnut Creek – 75C4 M10 | |
| CCCSD | RS | 3040 | CCCSD-RS-3040 | HDPE 60 mL | Backup | Residential | Creekside Drive, Walnut Creek – 75C4 M10 | |
| CCCSD | FBS | 0041 | CCCSD-FBS-0041 | HDPE 500 mL | Target | Field Blank | Residential field blank | |
| CCCSD | FBS | 1041 | CCCSD-FBS-1041 | HDPE 500 mL | Backup | Field Blank | Residential field blank | |
| CCCSD | FBS | 2041 | CCCSD-FBS-2041 | HDPE 60 mL | TOP | Field Blank | Residential field blank | |
| CCCSD | FBS | 3041 | CCCSD-FBS-3041 | HDPE 60 mL | Backup | Field Blank | Residential field blank | |
| CCCSD | INF | 0063 | CCCSD-INF-0063 | HDPE 125 mL | Target | Influent | Influent at CCCSD | |
| CCCSD | INF | 1063 | CCCSD-INF-1063 | HDPE 125 mL | Backup | Influent | Influent at CCCSD | |
| CCCSD | INF | 2063 | CCCSD-INF-2063 | HDPE 60 mL | TOP | Influent | Influent at CCCSD | |
| CCCSD | INF | 3063 | CCCSD-INF-3063 | HDPE 60 mL | Backup | Influent | Influent at CCCSD | |
| CCCSD | INF | 4063 | CCCSD-INF-4063 | HDPE 125 mL | AOF | Influent | Influent at CCCSD | |
| CCCSD | INF | 5063 | CCCSD-INF-5063 | HDPE 125 mL | Backup | Influent | Influent at CCCSD | |
| CCCSD | FBINF | 0064 | CCCSD-FBINF-0064 | HDPE 500 mL | Target | Field Blank | Field Blank at Influent sampling location at CCCSD | |
| CCCSD | FBINF | 1064 | CCCSD-FBINF-1064 | HDPE 500 mL | Backup | Field Blank | Field Blank at Influent sampling location at CCCSD | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| CCCSD | FBINF | 2064 | CCCSD-FBINF-2064 | HDPE 60 mL | TOP | Field Blank | Field Blank at Influent sampling location at CCCSD | |
| CCCSD | FBINF | 3064 | CCCSD-FBINF-3064 | HDPE 60 mL | Backup | Field Blank | Field Blank at Influent sampling location at CCCSD | |
| CCCSD | FBINF | 4064 | CCCSD-FBINF-4064 | HDPE 125 mL | AOF | Field Blank | Field Blank at Influent sampling location at CCCSD | |
| CCCSD | FBINF | 5064 | CCCSD-FBINF-5064 | HDPE 125 mL | Backup | Field Blank | Field Blank at Influent sampling location at CCCSD | |
| CCCSD | EBINF | 0065 | CCCSD-EBINF-0065 | HDPE 500 mL | Target | Equipment Rinse Blank | Equipment rinse blank for influent sampling equipment at CCCSD | |
| CCCSD | EBINF | 1065 | CCCSD-EBINF-1065 | HDPE 500 mL | Backup | Equipment Rinse Blank | Equipment rinse blank for influent sampling equipment at CCCSD | |
| CCCSD | EBINF | 2065 | CCCSD-EBINF-2065 | HDPE 60 mL | TOP | Equipment Rinse Blank | Equipment rinse blank for influent sampling equipment at CCCSD | |
| CCCSD | EBINF | 3065 | CCCSD-EBINF-3065 | HDPE 60 mL | Backup | Equipment Rinse Blank | Equipment rinse blank for influent sampling equipment at CCCSD | |
| CCCSD | INF | 0073 | CCCSD-INF-0073 | HDPE 125 mL | Target | Influent | Influent at CCCSD | |
| CCCSD | INF | 1073 | CCCSD-INF-1073 | HDPE 125 mL | Backup | Influent | Influent at CCCSD | |
| CCCSD | INF | 2073 | CCCSD-INF-2073 | HDPE 60 mL | TOP | Influent | Influent at CCCSD | |
| CCCSD | INF | 3073 | CCCSD-INF-3073 | HDPE 60 mL | Backup | Influent | Influent at CCCSD | |
| CCCSD | INF | 4073 | CCCSD-INF-4073 | HDPE 125 mL | AOF | Influent | Influent at CCCSD | |
| CCCSD | INF | 5073 | CCCSD-INF-5073 | HDPE 125 mL | Backup | Influent | Influent at CCCSD | |
| CCCSD | EFF | 0106 | CCCSD-EFF-0106 | HDPE 500 mL | Target | Effluent | Effluent at CCCSD | |
| CCCSD | EFF | 1106 | CCCSD-EFF-1106 | HDPE 500 mL | Backup | Effluent | Effluent at CCCSD | |
| CCCSD | EFF | 2106 | CCCSD-EFF-2106 | HDPE 60 mL | TOP | Effluent | Effluent at CCCSD | |
| CCCSD | EFF | 3106 | CCCSD-EFF-3106 | HDPE 60 mL | Backup | Effluent | Effluent at CCCSD | |
| CCCSD | EFF | 4106 | CCCSD-EFF-4106 | HDPE 125 mL | AOF | Effluent | Effluent at CCCSD | |
| CCCSD | EFF | 5106 | CCCSD-EFF-5106 | HDPE 125 mL | Backup | Effluent | Effluent at CCCSD | |
| CSM | INF | 0066 | CSM-INF-0066 | HDPE 125 mL | Target | Influent | Influent at CSM | |
| CSM | INF | 1066 | CSM-INF-1066 | HDPE 125 mL | Backup | Influent | Influent at CSM | |
| CSM | INF | 2066 | CSM-INF-2066 | HDPE 60 mL | TOP | Influent | Influent at CSM | |
| CSM | INF | 3066 | CSM-INF-3066 | HDPE 60 mL | Backup | Influent | Influent at CSM | |
| CSM | INF | 4066 | CSM-INF-4066 | HDPE 125 mL | AOF | Influent | Influent at CSM | |
| CSM | INF | 5066 | CSM-INF-5066 | HDPE 125 mL | Backup | Influent | Influent at CSM | |
| CSM | EFF | 0074 | CSM-EFF-0074 | HDPE 500 mL | Target | Effluent | Effluent at CSM | |
| CSM | EFF | 1074 | CSM-EFF-1074 | HDPE 500 mL | Backup | Effluent | Effluent at CSM | |
| CSM | EFF | 2074 | CSM-EFF-2074 | HDPE 60 mL | TOP | Effluent | Effluent at CSM | |
| CSM | EFF | 3074 | CSM-EFF-3074 | HDPE 60 mL | Backup | Effluent | Effluent at CSM | |
| CSM | EFF | 4074 | CSM-EFF-4074 | HDPE 125 mL | AOF | Effluent | Effluent at CSM | |
| CSM | EFF | 5074 | CSM-EFF-5074 | HDPE 125 mL | Backup | Effluent | Effluent at CSM | |
| CSM | BIO | 0083 | CSM-BIO-0083 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids from CSM | |
| DSRSD | GW | 0017 | DSRSD-GW-0017 | HDPE 500 mL | Target | Groundwater | Groundwater at MW5 (upper aquiclude) | |
| DSRSD | GW | 1017 | DSRSD-GW-1017 | HDPE 500 mL | Backup | Groundwater | Groundwater at MW5 (upper aquiclude) | |
| DSRSD | GW | 2017 | DSRSD-GW-2017 | HDPE 60 mL | TOP | Groundwater | Groundwater at MW5 (upper aquiclude) | |
| DSRSD | GW | 3017 | DSRSD-GW-3017 | HDPE 60 mL | Backup | Groundwater | Groundwater at MW5 (upper aquiclude) | |
| DSRSD | GW | 0018 | DSRSD-GW-0018 | HDPE 500 mL | Target | Groundwater | Groundwater at MW3 (uper aquifer) | |
| DSRSD | GW | 1018 | DSRSD-GW-1018 | HDPE 500 mL | Backup | Groundwater | Groundwater at MW3 (uper aquifer) | |
| DSRSD | GW | 2018 | DSRSD-GW-2018 | HDPE 60 mL | TOP | Groundwater | Groundwater at MW3 (uper aquifer) | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| DSRSD | GW | 3018 | DSRSD-GW-3018 | HDPE 60 mL | Backup | Groundwater | Groundwater at MW3 (uper aquifer) | |
| DSRSD | GW | 0019 | DSRSD-GW-0019 | HDPE 500 mL | Target | Groundwater | Groundwater at NW-75 (uper aquifer) | |
| DSRSD | GW | 1019 | DSRSD-GW-1019 | HDPE 500 mL | Backup | Groundwater | Groundwater at NW-75 (uper aquifer) | |
| DSRSD | GW | 2019 | DSRSD-GW-2019 | HDPE 60 mL | TOP | Groundwater | Groundwater at NW-75 (uper aquifer) | |
| DSRSD | GW | 3019 | DSRSD-GW-3019 | HDPE 60 mL | Backup | Groundwater | Groundwater at NW-75 (uper aquifer) | |
| DSRSD | IS | 0026 | DSRSD-IS-0026 | HDPE 125 mL | Target | On-site laundry/Jail | Santa Rita Jail | |
| DSRSD | IS | 1026 | DSRSD-IS-1026 | HDPE 125 mL | Backup | On-site laundry/Jail | Santa Rita Jail | |
| DSRSD | IS | 2026 | DSRSD-IS-2026 | HDPE 60 mL | TOP | On-site laundry/Jail | Santa Rita Jail | |
| DSRSD | IS | 3026 | DSRSD-IS-3026 | HDPE 60 mL | Backup | On-site laundry/Jail | Santa Rita Jail | |
| DSRSD | IS | 0027 | DSRSD-IS-0027 | HDPE 125 mL | Target | On-site laundry/Jail | Santa Rita Jail sample collected from different date | second sample collected on different day |
| DSRSD | IS | 1027 | DSRSD-IS-1027 | HDPE 125 mL | Backup | On-site laundry/Jail | Santa Rita Jail sample collected from different date | |
| DSRSD | IS | 2027 | DSRSD-IS-2027 | HDPE 60 mL | TOP | On-site laundry/Jail | Santa Rita Jail sample collected from different date | |
| DSRSD | IS | 3027 | DSRSD-IS-3027 | HDPE 60 mL | Backup | On-site laundry/Jail | Santa Rita Jail sample collected from different date | |
| DSRSD | IS | 0035 | DSRSD-IS-0035 | HDPE 125 mL | Target | AFFF on-site/Miltary Operations | Camp Parks | Sample on day 1 |
| DSRSD | IS | 1035 | DSRSD-IS-1035 | HDPE 125 mL | Backup | AFFF on-site/Miltary Operations | Camp Parks | |
| DSRSD | IS | 2035 | DSRSD-IS-2035 | HDPE 60 mL | TOP | AFFF on-site/Miltary Operations | Camp Parks | |
| DSRSD | IS | 3035 | DSRSD-IS-3035 | HDPE 60 mL | Backup | AFFF on-site/Miltary Operations | Camp Parks | |
| DSRSD | IS | 0036 | DSRSD-IS-0036 | HDPE 125 mL | Target | AFFF on-site/Miltary Operations | Camp Parks | Sample on day 2 |
| DSRSD | IS | 1036 | DSRSD-IS-1036 | HDPE 125 mL | Backup | AFFF on-site/Miltary Operations | Camp Parks | |
| DSRSD | IS | 2036 | DSRSD-IS-2036 | HDPE 60 mL | TOP | AFFF on-site/Miltary Operations | Camp Parks | |
| DSRSD | IS | 3036 | DSRSD-IS-3036 | HDPE 60 mL | Backup | AFFF on-site/Miltary Operations | Camp Parks | |
| DSRSD | INF | 0067 | DSRSD-INF-0067 | HDPE 125 mL | Target | Influent | Influent at DSRSD | |
| DSRSD | INF | 1067 | DSRSD-INF-1067 | HDPE 125 mL | Backup | Influent | Influent at DSRSD | |
| DSRSD | INF | 2067 | DSRSD-INF-2067 | HDPE 60 mL | TOP | Influent | Influent at DSRSD | |
| DSRSD | INF | 3067 | DSRSD-INF-3067 | HDPE 60 mL | Backup | Influent | Influent at DSRSD | |
| DSRSD | INF | 4067 | DSRSD-INF-4067 | HDPE 125 mL | AOF | Influent | Influent at DSRSD | |
| DSRSD | INF | 5067 | DSRSD-INF-5067 | HDPE 125 mL | Backup | Influent | Influent at DSRSD | |
| DSRSD | EFF | 0075 | DSRSD-EFF-0075 | HDPE 500 mL | Target | Effluent | Effluent at DSRSD | |
| DSRSD | EFF | 1075 | DSRSD-EFF-1075 | HDPE 500 mL | Backup | Effluent | Effluent at DSRSD | |
| DSRSD | EFF | 2075 | DSRSD-EFF-2075 | HDPE 60 mL | TOP | Effluent | Effluent at DSRSD | |
| DSRSD | EFF | 3075 | DSRSD-EFF-3075 | HDPE 60 mL | Backup | Effluent | Effluent at DSRSD | |
| DSRSD | EFF | 4075 | DSRSD-EFF-4075 | HDPE 125 mL | AOF | Effluent | Effluent at DSRSD | |
| DSRSD | EFF | 5075 | DSRSD-EFF-5075 | HDPE 125 mL | Backup | Effluent | Effluent at DSRSD | |
| DSRSD | BIO | 0084 | DSRSD-BIO-0084 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids from DSRSD | |
| DSRSD | FBBIO | 0085 | DSRSD-FBBIO-0085 | HDPE 500 mL | Target | Field Blank | Field blank for biosolids collection at DSRSD | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| DSRSD | FBBIO | 0086 | DSRSD-FBBIO-0086 | HDPE 500 mL | Backup | Field Blank | Field blank for biosolids collection at DSRSD | |
| DSRSD | EBBIO | 0087 | DSRSD-EBBIO-0087 | HDPE 500 mL | Target | Equipment Rinse Blank | Equipment rinse blank for biosolids collection at DSRSD | |
| DSRSD | EBBIO | 0088 | DSRSD-EBBIO-0088 | HDPE 500 mL | Backup | Equipment Rinse Blank | Equipment rinse blank for biosolids collection at DSRSD | |
| EBMUD | FW | 0081 | EBMUD-FW-0081 | HDPE 250 mL | Target and TOP | Food waste | Trucked liquid organics food waste slurry received directly at EBMUD | Composite from day 1 |
| EBMUD | FW | 0082 | EBMUD-FW-0082 | HDPE 250 mL | Target and TOP | Food waste | Trucked liquid organics food waste slurry received directly at EBMUD from different date | Composite from day 2 |
| EBMUD | IS | 0028 | EBMUD-IS-0028 | HDPE 125 mL | Target | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | Original sample |
| EBMUD | IS | 1028 | EBMUD-IS-1028 | HDPE 125 mL | Backup | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | |
| EBMUD | IS | 2028 | EBMUD-IS-2028 | HDPE 60 mL | TOP | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | |
| EBMUD | IS | 3028 | EBMUD-IS-3028 | HDPE 60 mL | Backup | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | |
| EBMUD | IS | 0028 | EBMUD-IS-0028 | HDPE 125 mL | Target MS | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | Extra sample volume for lab MS/MSD |
| EBMUD | IS | 0028 | EBMUD-IS-0028 | HDPE 125 mL | Target MSD | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | Extra sample volume for lab MS/MSD |
| EBMUD | IS | 3028 | EBMUD-IS-3028 | HDPE 60 mL | TOP MS | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | Extra sample volume for lab MS/MSD |
| EBMUD | IS | 3028 | EBMUD-IS-3028 | HDPE 60 mL | TOP MSD | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | Extra sample volume for lab MS/MSD |
| EBMUD | IS | 0029 | EBMUD-IS-0029 | HDPE 125 mL | Target | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | second sample collected on different day |
| EBMUD | IS | 1029 | EBMUD-IS-1029 | HDPE 125 mL | Backup | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | |
| EBMUD | IS | 2029 | EBMUD-IS-2029 | HDPE 60 mL | TOP | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | |
| EBMUD | IS | 3029 | EBMUD-IS-3029 | HDPE 60 mL | Backup | Industrial laundry | Aramark Uniform & Career Apparel, LLC (Oakland) | |
| EBMUD | RS | 0042 | EBMUD-RS-0042 | HDPE 125 mL | Target | Residential | Berkeley Hills | |
| EBMUD | RS | 1042 | EBMUD-RS-1042 | HDPE 125 mL | Backup | Residential | Berkeley Hills | |
| EBMUD | RS | 2042 | EBMUD-RS-2042 | HDPE 60 mL | TOP | Residential | Berkeley Hills | |
| EBMUD | RS | 3042 | EBMUD-RS-3042 | HDPE 60 mL | Backup | Residential | Berkeley Hills | |
| EBMUD | RS | 0043 | EBMUD-RS-0043 | HDPE 125 mL | Target | Residential | East Oakland | |
| EBMUD | RS | 1043 | EBMUD-RS-1043 | HDPE 125 mL | Backup | Residential | East Oakland | |
| EBMUD | RS | 2043 | EBMUD-RS-2043 | HDPE 60 mL | TOP | Residential | East Oakland | |
| EBMUD | RS | 3043 | EBMUD-RS-3043 | HDPE 60 mL | Backup | Residential | East Oakland | |
| EBMUD | INF | 0068 | EBMUD-INF-0068 | HDPE 125 mL | Target | Influent | Influent at EBMUD | Composite sample |
| EBMUD | INF | 1068 | EBMUD-INF-1068 | HDPE 125 mL | Backup | Influent | Influent at EBMUD | |
| EBMUD | INF | 2068 | EBMUD-INF-2068 | HDPE 60 mL | TOP | Influent | Influent at EBMUD | |
| EBMUD | INF | 3068 | EBMUD-INF-3068 | HDPE 60 mL | Backup | Influent | Influent at EBMUD | |
| EBMUD | INF | 4068 | EBMUD-INF-4068 | HDPE 125 mL | AOF | Influent | Influent at EBMUD | |

## Appendix A: Final Sample ID List (date 3/28/2022)

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| EBMUD | INF | 5068 | EBMUD-INF-5068 | HDPE 125 mL | Backup | Influent | Influent at EBMUD | |
| EBMUD | INF | 0069 | EBMUD-INF-0069 | HDPE 125 mL | Target | Influent | Influent at EBMUD | Composite replicate |
| EBMUD | INF | 1069 | EBMUD-INF-1069 | HDPE 125 mL | Backup | Influent | Influent at EBMUD | |
| EBMUD | INF | 2069 | EBMUD-INF-2069 | HDPE 60 mL | TOP | Influent | Influent at EBMUD | |
| EBMUD | INF | 3069 | EBMUD-INF-3069 | HDPE 60 mL | Backup | Influent | Influent at EBMUD | |
| EBMUD | INF | 4069 | EBMUD-INF-4069 | HDPE 125 mL | AOF | Influent | Influent at EBMUD | |
| EBMUD | INF | 5069 | EBMUD-INF-5069 | HDPE 125 mL | Backup | Influent | Influent at EBMUD | |
| EBMUD | EFF | 0076 | EBMUD-EFF-0076 | HDPE 500 mL | Target | Effluent | Effluent at EBMUD | |
| EBMUD | EFF | 1076 | EBMUD-EFF-1076 | HDPE 500 mL | Backup | Effluent | Effluent at EBMUD | |
| EBMUD | EFF | 2076 | EBMUD-EFF-2076 | HDPE 60 mL | TOP | Effluent | Effluent at EBMUD | |
| EBMUD | EFF | 3076 | EBMUD-EFF-3076 | HDPE 60 mL | Backup | Effluent | Effluent at EBMUD | |
| EBMUD | EFF | 4076 | EBMUD-EFF-4076 | HDPE 125 mL | AOF | Effluent | Effluent at EBMUD | |
| EBMUD | EFF | 5076 | EBMUD-EFF-5076 | HDPE 125 mL | Backup | Effluent | Effluent at EBMUD | |
| EBMUD | EFF | 0077 | EBMUD-EFF-0077 | HDPE 500 mL | Target | Effluent | Effluent replicate at EBMUD | |
| EBMUD | EFF | 1077 | EBMUD-EFF-1077 | HDPE 500 mL | Backup | Effluent | Effluent replicate at EBMUD | |
| EBMUD | EFF | 2077 | EBMUD-EFF-2077 | HDPE 60 mL | TOP | Effluent | Effluent replicate at EBMUD | |
| EBMUD | EFF | 3077 | EBMUD-EFF-3077 | HDPE 60 mL | Backup | Effluent | Effluent replicate at EBMUD | |
| EBMUD | EFF | 4077 | EBMUD-EFF-4077 | HDPE 125 mL | AOF | Effluent | Effluent replicate at EBMUD | |
| EBMUD | EFF | 5077 | EBMUD-EFF-5077 | HDPE 125 mL | Backup | Effluent | Effluent replicate at EBMUD | |
| EBMUD | EFF | 0077 | EBMUD-EFF-0077 | HDPE 500 mL | Target MS | Effluent | Effluent replicate at EBMUD | Extra sample volume for MS/MSD |
| EBMUD | EFF | 0077 | EBMUD-EFF-0077 | HDPE 500 mL | Target MSD | Effluent | Effluent replicate at EBMUD | Extra sample volume for MS/MSD |
| EBMUD | EFF | 2077 | EBMUD-EFF-2077 | HDPE 60 mL | TOP MS | Effluent | Effluent replicate at EBMUD | Extra sample volume for MS/MSD |
| EBMUD | EFF | 2077 | EBMUD-EFF-2077 | HDPE 60 mL | TOP MSD | Effluent | Effluent replicate at EBMUD | Extra sample volume for MS/MSD |
| EBMUD | EFF | 4077 | EBMUD-EFF-4077 | HDPE 125 mL | AOF MS | Effluent | Effluent replicate at EBMUD | Extra sample volume for MS/MSD |
| EBMUD | EFF | 4077 | EBMUD-EFF-4077 | HDPE 125 mL | AOF MSD | Effluent | Effluent replicate at EBMUD | Extra sample volume for MS/MSD |
| EBMUD | BIO | 0089 | EBMUD-BIO-0089 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids at EBMUD | Sample on day 1 |
| EBMUD | BIO | 0090 | EBMUD-BIO-0090 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids at EBMUD, replicate | Replicate on day 1 |
| EBMUD | BIO | 0091 | EBMUD-BIO-0091 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids at EBMUD, from different date | second sample collected on different day |
| EBMUD | BF | 0096 | EBMUD-BF-0096 | HDPE 250 mL | Target and TOP | Blended Feed | Undigested blended feed at EMBUD | Sample on day 1 |
| EBMUD | BF | 0097 | EBMUD-BF-0097 | HDPE 250 mL | Target and TOP | Blended Feed | Undigested blended feed at EMBUD, replicate | Replicate on day 1 |
| EBMUD | BF | 0098 | EBMUD-BF-0098 | HDPE 250 mL | Target and TOP | Blended Feed | Undigested blended feed at EMBUD from different date | Sample on day 2 |
| SFPUC | IS | 0008 | SFPUC-IS-0008 | HDPE 125 mL | Target | Car wash | Tower Car Wash | |
| SFPUC | IS | 1008 | SFPUC-IS-1008 | HDPE 125 mL | Backup | Car wash | Tower Car Wash | |
| SFPUC | IS | 2008 | SFPUC-IS-2008 | HDPE 60 mL | TOP | Car wash | Tower Car Wash | |
| SFPUC | IS | 3008 | SFPUC-IS-3008 | HDPE 60 mL | Backup | Car wash | Tower Car Wash | |
| SFPUC | IS | 0016 | SFPUC-IS-0016 | HDPE 125 mL | Target | Car wash | Shell Oil Car Wash | |
| SFPUC | IS | 1016 | SFPUC-IS-1016 | HDPE 125 mL | Backup | Car wash | Shell Oil Car Wash | |
| SFPUC | IS | 2016 | SFPUC-IS-2016 | HDPE 60 mL | TOP | Car wash | Shell Oil Car Wash | |
| SFPUC | IS | 3016 | SFPUC-IS-3016 | HDPE 60 mL | Backup | Car wash | Shell Oil Car Wash | |
| SFPUC | IS | 0103 | SFPUC-IS-0103 | HDPE 125 mL | Target | Car wash | Auto City Car Wash | |
| SFPUC | IS | 1103 | SFPUC-IS-1103 | HDPE 125 mL | Backup | Car wash | Auto City Car Wash | |
| SFPUC | IS | 2103 | SFPUC-IS-2103 | HDPE 60 mL | TOP | Car wash | Auto City Car Wash | |
| SFPUC | IS | 3013 | SFPUC-IS-3013 | HDPE 60 mL | Backup | Car wash | Auto City Car Wash | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| SFPUC | IS | 0009 | SFPUC-IS-0009 | HDPE 125 mL | Target | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | Original sample |
| SFPUC | IS | 1009 | SFPUC-IS-1009 | HDPE 125 mL | Backup | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | |
| SFPUC | IS | 2009 | SFPUC-IS-2009 | HDPE 60 mL | TOP | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | |
| SFPUC | IS | 3009 | SFPUC-IS-3009 | HDPE 60 mL | Backup | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | |
| SFPUC | IS | 0010 | SFPUC-IS-0010 | HDPE 125 mL | Target | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | second sample collected on different day |
| SFPUC | IS | 1010 | SFPUC-IS-1010 | HDPE 125 mL | Backup | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | |
| SFPUC | IS | 2010 | SFPUC-IS-2010 | HDPE 60 mL | TOP | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | |
| SFPUC | IS | 3010 | SFPUC-IS-3010 | HDPE 60 mL | Backup | Electronics manufacturing | (Tentative, may not be available) Tempo Automation 2460 ALAMEDA ST | |
| SFPUC | IS | 0020 | SFPUC-IS-0020 | HDPE 125 mL | Target | Hospital | UCSF Mission Bay | |
| SFPUC | IS | 1020 | SFPUC-IS-1020 | HDPE 125 mL | Backup | Hospital | UCSF Mission Bay | |
| SFPUC | IS | 2020 | SFPUC-IS-2020 | HDPE 60 mL | TOP | Hospital | UCSF Mission Bay | |
| SFPUC | IS | 3020 | SFPUC-IS-3020 | HDPE 60 mL | Backup | Hospital | UCSF Mission Bay | |
| SFPUC | IS | 0104 | SFPUC-IS-0104 | HDPE 125 mL | Target | Hospital | SF General Hospital | |
| SFPUC | IS | 1104 | SFPUC-IS-1104 | HDPE 125 mL | Backup | Hospital | SF General Hospital | |
| SFPUC | IS | 2104 | SFPUC-IS-2104 | HDPE 60 mL | TOP | Hospital | SF General Hospital | |
| SFPUC | IS | 3104 | SFPUC-IS-3104 | HDPE 60 mL | Backup | Hospital | SF General Hospital | |
| SFPUC | IS | 0030 | SFPUC-IS-0030 | HDPE 125 mL | Target | Industrial laundry | ALSCO, Inc. 1575 Indiana St. OR Bay Area Linens and Valet Service. 100 Cypress St. | |
| SFPUC | IS | 1030 | SFPUC-IS-1030 | HDPE 125 mL | Backup | Industrial laundry | ALSCO, Inc. 1575 Indiana St. OR Bay Area Linens and Valet Service. 100 Cypress St. | |
| SFPUC | IS | 2030 | SFPUC-IS-2030 | HDPE 60 mL | TOP | Industrial laundry | ALSCO, Inc. 1575 Indiana St. OR Bay Area Linens and Valet Service. 100 Cypress St. | |
| SFPUC | IS | 3030 | SFPUC-IS-3030 | HDPE 60 mL | Backup | Industrial laundry | ALSCO, Inc. 1575 Indiana St. OR Bay Area Linens and Valet Service. 100 Cypress St. | |
| SFPUC | RS | 0044 | SFPUC-RS-0044 | HDPE 125 mL | Target | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | Composite sample on day 1 |
| SFPUC | RS | 1044 | SFPUC-RS-1044 | HDPE 125 mL | Backup | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | |
| SFPUC | RS | 2044 | SFPUC-RS-2044 | HDPE 60 mL | TOP | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | |
| SFPUC | RS | 3044 | SFPUC-RS-3044 | HDPE 60 mL | Backup | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | |
| SFPUC | RS | 0044 | SFPUC-RS-0044 | HDPE 125 mL | Target MS | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | Extra sample volume for lab QA sample - MS/MSD |
| SFPUC | RS | 0044 | SFPUC-RS-0044 | HDPE 125 mL | Target MSD | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | Extra sample volume for lab QA sample - MS/MSD |
| SFPUC | RS | 2044 | SFPUC-RS-2044 | HDPE 125 mL | TOP MS | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | Extra sample volume for lab QA sample - MS/MSD |
| SFPUC | RS | 2044 | SFPUC-RS-2044 | HDPE 125 mL | TOP MSD | Residential | San Francisco Stories (1350 units) Portola Dr near Corbett Ave | Extra sample volume for lab QA sample - MS/MSD |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| SFPUC | RS | 0045 | SFPUC-RS-0045 | HDPE 125 mL | Target | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | Composite replicate on day 1 |
| SFPUC | RS | 1045 | SFPUC-RS-1045 | HDPE 125 mL | Backup | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 2045 | SFPUC-RS-2045 | HDPE 60 mL | TOP | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 3045 | SFPUC-RS-3045 | HDPE 60 mL | Backup | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 0046 | SFPUC-RS-0046 | HDPE 125 mL | Target | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | Composite sample on day 2 weekday |
| SFPUC | RS | 1046 | SFPUC-RS-1046 | HDPE 125 mL | Backup | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 2046 | SFPUC-RS-2046 | HDPE 60 mL | TOP | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 3046 | SFPUC-RS-3046 | HDPE 60 mL | Backup | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 0047 | SFPUC-RS-0047 | HDPE 125 mL | Target | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | Composite sample on day 3 weekend |
| SFPUC | RS | 1047 | SFPUC-RS-1047 | HDPE 125 mL | Backup | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 2047 | SFPUC-RS-2047 | HDPE 60 mL | TOP | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 3047 | SFPUC-RS-3047 | HDPE 60 mL | Backup | Residential | San Francisco Stories (1350 units)<br>Portola Dr near Corbett Ave | |
| SFPUC | RS | 0048 | SFPUC-RS-0048 | HDPE 125 mL | Target | Residential | Park Merced Apartments (458 units)<br>Font Blvd circle at Cambon Dr. | |
| SFPUC | RS | 1048 | SFPUC-RS-1048 | HDPE 125 mL | Backup | Residential | Park Merced Apartments (458 units)<br>Font Blvd circle at Cambon Dr. | |
| SFPUC | RS | 2048 | SFPUC-RS-2048 | HDPE 60 mL | TOP | Residential | Park Merced Apartments (458 units)<br>Font Blvd circle at Cambon Dr. | |
| SFPUC | RS | 3048 | SFPUC-RS-3048 | HDPE 60 mL | Backup | Residential | Park Merced Apartments (458 units)<br>Font Blvd circle at Cambon Dr. | |
| SFPUC | RS | 0049 | SFPUC-RS-0049 | HDPE 125 mL | Target | Residential | San Rafael and Monterey (438 units) | |
| SFPUC | RS | 1049 | SFPUC-RS-1049 | HDPE 125 mL | Backup | Residential | San Rafael and Monterey (438 units) | |
| SFPUC | RS | 2049 | SFPUC-RS-2049 | HDPE 60 mL | TOP | Residential | San Rafael and Monterey (438 units) | |
| SFPUC | RS | 3049 | SFPUC-RS-3049 | HDPE 60 mL | Backup | Residential | San Rafael and Monterey (438 units) | |
| SFPUC | RS | 0050 | SFPUC-RS-0050 | HDPE 125 mL | Target | Residential | Rutland and Raymond | Sample on day 1 weekday |
| SFPUC | RS | 1050 | SFPUC-RS-1050 | HDPE 125 mL | Backup | Residential | Rutland and Raymond | |
| SFPUC | RS | 2050 | SFPUC-RS-2050 | HDPE 60 mL | TOP | Residential | Rutland and Raymond | |
| SFPUC | RS | 3050 | SFPUC-RS-3050 | HDPE 60 mL | Backup | Residential | Rutland and Raymond | |
| SFPUC | RS | 0051 | SFPUC-RS-0051 | HDPE 125 mL | Target | Residential | Rutland and Raymond | Sample on day 2 weekend |
| SFPUC | RS | 1051 | SFPUC-RS-1051 | HDPE 125 mL | Backup | Residential | Rutland and Raymond | |
| SFPUC | RS | 2051 | SFPUC-RS-2051 | HDPE 60 mL | TOP | Residential | Rutland and Raymond | |
| SFPUC | RS | 3051 | SFPUC-RS-3051 | HDPE 60 mL | Backup | Residential | Rutland and Raymond | |
| SFPUC | RS | 0052 | SFPUC-RS-0052 | HDPE 125 mL | Target | Residential | Urbano and Alviso | |
| SFPUC | RS | 1052 | SFPUC-RS-1052 | HDPE 125 mL | Backup | Residential | Urbano and Alviso | |
| SFPUC | RS | 2052 | SFPUC-RS-2052 | HDPE 60 mL | TOP | Residential | Urbano and Alviso | |
| SFPUC | RS | 3052 | SFPUC-RS-3052 | HDPE 60 mL | Backup | Residential | Urbano and Alviso | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| SFPUC | RS | 0053 | SFPUC-RS-0053 | HDPE 125 mL | Target | Residential | Dewey Circle. 240 Montalvo Ave | |
| SFPUC | RS | 1053 | SFPUC-RS-1053 | HDPE 125 mL | Backup | Residential | Dewey Circle. 240 Montalvo Ave | |
| SFPUC | RS | 2053 | SFPUC-RS-2053 | HDPE 60 mL | TOP | Residential | Dewey Circle. 240 Montalvo Ave | |
| SFPUC | RS | 3053 | SFPUC-RS-3053 | HDPE 60 mL | Backup | Residential | Dewey Circle. 240 Montalvo Ave | |
| SFPUC | RS | 0054 | SFPUC-RS-0054 | HDPE 125 mL | Target | Residential | Quintara Steps. 60 Fanning Way | |
| SFPUC | RS | 1054 | SFPUC-RS-1054 | HDPE 125 mL | Backup | Residential | Quintara Steps. 60 Fanning Way | |
| SFPUC | RS | 2054 | SFPUC-RS-2054 | HDPE 60 mL | TOP | Residential | Quintara Steps. 60 Fanning Way | |
| SFPUC | RS | 3054 | SFPUC-RS-3054 | HDPE 60 mL | Backup | Residential | Quintara Steps. 60 Fanning Way | |
| SFPUC | RS | 0055 | SFPUC-RS-0055 | HDPE 125 mL | Target | Residential | Ventura Ave | |
| SFPUC | RS | 1055 | SFPUC-RS-1055 | HDPE 125 mL | Backup | Residential | Ventura Ave | |
| SFPUC | RS | 2055 | SFPUC-RS-2055 | HDPE 60 mL | TOP | Residential | Ventura Ave | |
| SFPUC | RS | 3055 | SFPUC-RS-3055 | HDPE 60 mL | Backup | Residential | Ventura Ave | |
| SFPUC | RS | 0056 | SFPUC-RS-0056 | HDPE 125 mL | Target | Residential | high industry residential neighborhood | |
| SFPUC | RS | 1056 | SFPUC-RS-1056 | HDPE 125 mL | Backup | Residential | high industry residential neighborhood | |
| SFPUC | RS | 2056 | SFPUC-RS-2056 | HDPE 60 mL | TOP | Residential | high industry residential neighborhood | |
| SFPUC | RS | 3056 | SFPUC-RS-3056 | HDPE 60 mL | Backup | Residential | high industry residential neighborhood | |
| SFPUC | FBS | 0057 | SFPUC-FBS-0057 | HDPE 500 mL | Target | Equipment Rinse Blank | Equipment rinse blank for residential sampling | Indicate sampling location |
| SFPUC | FBS | 1057 | SFPUC-FBS-1057 | HDPE 500 mL | Backup | Equipment Rinse Blank | Equipment rinse blank for residential sampling | |
| SFPUC | FBS | 2057 | SFPUC-FBS-2057 | HDPE 60 mL | TOP | Equipment Rinse Blank | Equipment rinse blank for residential sampling | |
| SFPUC | FBS | 3057 | SFPUC-FBS-3057 | HDPE 60 mL | Backup | Equipment Rinse Blank | Equipment rinse blank for residential sampling | |
| SFPUC | FBS | 0058 | SFPUC-FBS-0058 | HDPE 500 mL | Target | Field Blank | Field blank for residential sampling | |
| SFPUC | FBS | 1058 | SFPUC-FBS-1058 | HDPE 500 mL | Backup | Field Blank | Field blank for residential sampling | |
| SFPUC | FBS | 2058 | SFPUC-FBS-2058 | HDPE 60 mL | TOP | Field Blank | Field blank for residential sampling | |
| SFPUC | FBS | 3058 | SFPUC-FBS-3058 | HDPE 60 mL | Backup | Field Blank | Field blank for residential sampling | |
| SFPUC | FBS | 0060 | SFPUC-FBS-0060 | HDPE 500 mL | Target | Field Blank | Field blank for industrial sewershed sampling | |
| SFPUC | FBS | 1060 | SFPUC-FBS-1060 | HDPE 500 mL | Backup | Field Blank | Field blank for industrial sewershed sampling | |
| SFPUC | FBS | 2060 | SFPUC-FBS-2060 | HDPE 60 mL | TOP | Field Blank | Field blank for industrial sewershed sampling | |
| SFPUC | FBS | 3060 | SFPUC-FBS-3060 | HDPE 60 mL | Backup | Field Blank | Field blank for industrial sewershed sampling | |
| SFPUCOS | INF | 0071 | SFPUCOS-INF-0071 | HDPE 125 mL | Target | Influent | Influent at SFPUC_OS | |
| SFPUCOS | INF | 1071 | SFPUCOS-INF-1071 | HDPE 125 mL | Backup | Influent | Influent at SFPUC_OS | |
| SFPUCOS | INF | 2071 | SFPUCOS-INF-2071 | HDPE 60 mL | TOP | Influent | Influent at SFPUC_OS | |
| SFPUCOS | INF | 3071 | SFPUCOS-INF-3071 | HDPE 60 mL | Backup | Influent | Influent at SFPUC_OS | |
| SFPUCOS | INF | 4071 | SFPUCOS-INF-4071 | HDPE 125 mL | AOF | Influent | Influent at SFPUC_OS | |
| SFPUCOS | INF | 5071 | SFPUCOS-INF-5071 | HDPE 125 mL | Backup | Influent | Influent at SFPUC_OS | |
| SFPUCOS | EFF | 0079 | SFPUCOS-EFF-0079 | HDPE 500 mL | Target | Effluent | Effluent at SFPUC_OS | |
| SFPUCOS | EFF | 1079 | SFPUCOS-EFF-1079 | HDPE 500 mL | Backup | Effluent | Effluent at SFPUC_OS | |
| SFPUCOS | EFF | 2079 | SFPUCOS-EFF-2079 | HDPE 60 mL | TOP | Effluent | Effluent at SFPUC_OS | |
| SFPUCOS | EFF | 3079 | SFPUCOS-EFF-3079 | HDPE 60 mL | Backup | Effluent | Effluent at SFPUC_OS | |
| SFPUCOS | EFF | 4079 | SFPUCOS-EFF-4079 | HDPE 125 mL | AOF | Effluent | Effluent at SFPUC_OS | |
| SFPUCOS | EFF | 5079 | SFPUCOS-EFF-5079 | HDPE 125 mL | Backup | Effluent | Effluent at SFPUC_OS | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| SFPUCOS | BIO | 0094 | SFPUCOS-BIO-0094 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids at SFPUC_OS | Sample on day 1 |
| SFPUCOS | BIO | 0095 | SFPUCOS-BIO-0095 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids at SFPUC_OS, from different date | Sample on day 2 |
| SFPUCOS | BF | 0101 | SFPUCOS-BF-0101 | HDPE 250 mL | Target and TOP | Blended Feed | Undigested blended feed at SFPUC_OS | Sample on day 1 |
| SFPUCOS | BF | 0102 | SFPUCOS-BF-0102 | HDPE 250 mL | Target and TOP | Blended Feed | Undigested blended feed at SFPUC_OS from different date | Sample on day 2 |
| SFPUCSE | INF | 0070 | SFPUCSE-INF-0070 | HDPE 125 mL | Target | Influent | Influent at SFPUC_SE | |
| SFPUCSE | INF | 1070 | SFPUCSE-INF-1070 | HDPE 125 mL | Backup | Influent | Influent at SFPUC_SE | |
| SFPUCSE | INF | 2070 | SFPUCSE-INF-2070 | HDPE 60 mL | TOP | Influent | Influent at SFPUC_SE | |
| SFPUCSE | INF | 3070 | SFPUCSE-INF-3070 | HDPE 60 mL | Backup | Influent | Influent at SFPUC_SE | |
| SFPUCSE | INF | 4070 | SFPUCSE-INF-4070 | HDPE 125 mL | AOF | Influent | Influent at SFPUC_SE | |
| SFPUCSE | INF | 5070 | SFPUCSE-INF-5070 | HDPE 125 mL | Backup | Influent | Influent at SFPUC_SE | |
| SFPUCSE | EFF | 0078 | SFPUCSE-EFF-0078 | HDPE 500 mL | Target | Effluent | Effluent at SFPUC_SE | |
| SFPUCSE | EFF | 1078 | SFPUCSE-EFF-1078 | HDPE 500 mL | Backup | Effluent | Effluent at SFPUC_SE | |
| SFPUCSE | EFF | 2078 | SFPUCSE-EFF-2078 | HDPE 60 mL | TOP | Effluent | Effluent at SFPUC_SE | |
| SFPUCSE | EFF | 3078 | SFPUCSE-EFF-3078 | HDPE 60 mL | Backup | Effluent | Effluent at SFPUC_SE | |
| SFPUCSE | EFF | 4078 | SFPUCSE-EFF-4078 | HDPE 125 mL | AOF | Effluent | Effluent at SFPUC_SE | |
| SFPUCSE | EFF | 5078 | SFPUCSE-EFF-5078 | HDPE 125 mL | Backup | Effluent | Effluent at SFPUC_SE | |
| SFPUCSE | BIO | 0092 | SFPUCSE-BIO-0092 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids at SFPUC_SE | Sample on day 1 |
| SFPUCSE | BIO | 0093 | SFPUCSE-BIO-0093 | HDPE 250 mL | Target and TOP | Final Biosolids | Final digested biosolids at SFPUC_SE, from different date | Sample on day 2 |
| SFPUCSE | BF | 0099 | SFPUCSE-BF-0099 | HDPE 250 mL | Target and TOP | Blended Feed | Undigested blended feed at SFPUC_SE | Sample on day 1 |
| SFPUCSE | BF | 0100 | SFPUCSE-BF-0100 | HDPE 250 mL | Target and TOP | Blended Feed | Undigested blended feed at SFPUC_SE from different date | sample on day 2 |
| SJSC | IS | 0001 | SJSC-IS-0001 | HDPE 125 mL | Target | Chemical Manufacturer | Honeywell International (SC-225B) | Grab sample during setup |
| SJSC | IS | 1001 | SJSC-IS-1001 | HDPE 125 mL | Backup | Chemical Manufacturer | Honeywell International (SC-225B) | |
| SJSC | IS | 2001 | SJSC-IS-2001 | HDPE 60 mL | TOP | Chemical Manufacturer | Honeywell International (SC-225B) | |
| SJSC | IS | 3001 | SJSC-IS-3001 | HDPE 60 mL | Backup | Chemical Manufacturer | Honeywell International (SC-225B) | |
| SJSC | IS | 0011 | SJSC-IS-0011 | HDPE 125 mL | Target | Chemical Manufacturer | Honeywell International (SC-225B) | Composite sample |
| SJSC | IS | 1011 | SJSC-IS-1011 | HDPE 125 mL | Backup | Chemical Manufacturer | Honeywell International (SC-225B) | |
| SJSC | IS | 2011 | SJSC-IS-2011 | HDPE 60 mL | TOP | Chemical Manufacturer | Honeywell International (SC-225B) | |
| SJSC | IS | 3011 | SJSC-IS-3011 | HDPE 60 mL | Backup | Chemical Manufacturer | Honeywell International (SC-225B) | |
| SJSC | IS | 0002 | SJSC-IS-0002 | HDPE 125 mL | Target | Chrome plater | A & E Anodizing (SJ-314B) | grab sample during setup |
| SJSC | IS | 1002 | SJSC-IS-1002 | HDPE 125 mL | Backup | Chrome plater | A & E Anodizing (SJ-314B) | |
| SJSC | IS | 2002 | SJSC-IS-2002 | HDPE 60 mL | TOP | Chrome plater | A & E Anodizing (SJ-314B) | |
| SJSC | IS | 3002 | SJSC-IS-3002 | HDPE 60 mL | Backup | Chrome plater | A & E Anodizing (SJ-314B) | |
| SJSC | IS | 0003 | SJSC-IS-0003 | HDPE 125 mL | Target | Chrome plater | A & E Anodizing (SJ-314B) | Composite sample |
| SJSC | IS | 1003 | SJSC-IS-1003 | HDPE 125 mL | Backup | Chrome plater | A & E Anodizing (SJ-314B) | |
| SJSC | IS | 2003 | SJSC-IS-2003 | HDPE 60 mL | TOP | Chrome plater | A & E Anodizing (SJ-314B) | |
| SJSC | IS | 3003 | SJSC-IS-3003 | HDPE 60 mL | Backup | Chrome plater | A & E Anodizing (SJ-314B) | |
| SJSC | IS | 0004 | SJSC-IS-0004 | HDPE 125 mL | Target | Chrome plater | Amex Plating, Inc. (SC-182B) | grab sample during setup |
| SJSC | IS | 1004 | SJSC-IS-1004 | HDPE 125 mL | Backup | Chrome plater | Amex Plating, Inc. (SC-182B) | |
| SJSC | IS | 2004 | SJSC-IS-2004 | HDPE 60 mL | TOP | Chrome plater | Amex Plating, Inc. (SC-182B) | |
| SJSC | IS | 3004 | SJSC-IS-3004 | HDPE 60 mL | Backup | Chrome plater | Amex Plating, Inc. (SC-182B) | |
| SJSC | IS | 0005 | SJSC-IS-0005 | HDPE 125 mL | Target | Chrome plater | Amex Plating, Inc. (SC-182B) | Composite sample |
| SJSC | IS | 1005 | SJSC-IS-1005 | HDPE 125 mL | Backup | Chrome plater | Amex Plating, Inc. (SC-182B) | |
| SJSC | IS | 2005 | SJSC-IS-2005 | HDPE 60 mL | TOP | Chrome plater | Amex Plating, Inc. (SC-182B) | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| SJSC | IS | 3005 | SJSC-IS-3005 | HDPE 60 mL | Backup | Chrome plater | Amex Plating, Inc. (SC-182B) | |
| SJSC | IS | 0006 | SJSC-IS-0006 | HDPE 125 mL | Target | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) | grab sample during setup |
| SJSC | IS | 1006 | SJSC-IS-1006 | HDPE 125 mL | Backup | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) | |
| SJSC | IS | 2006 | SJSC-IS-2006 | HDPE 60 mL | TOP | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) | |
| SJSC | IS | 3006 | SJSC-IS-3006 | HDPE 60 mL | Backup | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) | |
| SJSC | IS | 0007 | SJSC-IS-0007 | HDPE 125 mL | Target | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) 1021 Berryessa Rd, San Jose 95133 | second composite from different month |
| SJSC | IS | 1007 | SJSC-IS-1007 | HDPE 125 mL | Backup | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) 1021 Berryessa Rd, San Jose 95134 | |
| SJSC | IS | 2007 | SJSC-IS-2007 | HDPE 60 mL | TOP | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) 1021 Berryessa Rd, San Jose 95135 | |
| SJSC | IS | 3007 | SJSC-IS-3007 | HDPE 60 mL | Backup | Chrome reduction processes/Centralized Waste Treatment | Clean Harbors San Jose, LLC (SJ-487A) 1021 Berryessa Rd, San Jose 95136 | |
| SJSC | IS | 0012 | SJSC-IS-0012 | HDPE 125 mL | Target | Semiconductor | Lumentum Operations LLC (SJ-673B) | Composite sample on first day |
| SJSC | IS | 1012 | SJSC-IS-1012 | HDPE 125 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 2012 | SJSC-IS-2012 | HDPE 60 mL | TOP | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 3012 | SJSC-IS-3012 | HDPE 60 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 0013 | SJSC-IS-0013 | HDPE 125 mL | Target | Semiconductor | Lumentum Operations LLC (SJ-673B) | Composite replicate on first day |
| SJSC | IS | 1013 | SJSC-IS-1013 | HDPE 125 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 2013 | SJSC-IS-2013 | HDPE 60 mL | TOP | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 3013 | SJSC-IS-3013 | HDPE 60 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 0012 | SJSC-IS-0012 | HDPE 125 mL | Target MS | Semiconductor | Lumentum Operations LLC (SJ-673B) | Extra sample volume for MS/MSD |
| SJSC | IS | 0012 | SJSC-IS-0012 | HDPE 125 mL | Target MSD | Semiconductor | Lumentum Operations LLC (SJ-673B) | Extra sample volume for MS/MSD |
| SJSC | IS | 2012 | SJSC-IS-2012 | HDPE 60 mL | TOP MS | Semiconductor | Lumentum Operations LLC (SJ-673B) | Extra sample volume for MS/MSD |
| SJSC | IS | 2012 | SJSC-IS-2012 | HDPE 60 mL | TOP MSD | Semiconductor | Lumentum Operations LLC (SJ-673B) | Extra sample volume for MS/MSD |
| SJSC | IS | 0014 | SJSC-IS-0014 | HDPE 125 mL | Target | Semiconductor | Lumentum Operations LLC (SJ-673B) | grab sample on first day |
| SJSC | IS | 1014 | SJSC-IS-1014 | HDPE 125 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 2014 | SJSC-IS-2014 | HDPE 60 mL | TOP | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 3014 | SJSC-IS-3014 | HDPE 60 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 0015 | SJSC-IS-0015 | HDPE 125 mL | Target | Semiconductor | Lumentum Operations LLC (SJ-673B) | grab sample on first day |
| SJSC | IS | 1015 | SJSC-IS-1015 | HDPE 125 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 2015 | SJSC-IS-2015 | HDPE 60 mL | TOP | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | IS | 3015 | SJSC-IS-3015 | HDPE 60 mL | Backup | Semiconductor | Lumentum Operations LLC (SJ-673B) | |
| SJSC | FBS | 0023 | SJSC-FBS-0023 | HDPE 500 mL | Target | Equipment Rinse Blank | Equipment rinse blank for industrial sampling locations. | Indicate what industrial site sample is collected. |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| SJSC | FBS | 1023 | SJSC-FBS-1023 | HDPE 500 mL | Backup | Equipment Rinse Blank | Equipment rinse blank for industrial sampling locations. | |
| SJSC | FBS | 2023 | SJSC-FBS-2023 | HDPE 60 mL | TOP | Equipment Rinse Blank | Equipment rinse blank for industrial sampling locations. | |
| SJSC | FBS | 3023 | SJSC-FBS-3023 | HDPE 60 mL | Backup | Equipment Rinse Blank | Equipment rinse blank for industrial sampling locations. | |
| SJSC | FBS | 0024 | SJSC-FBS-0024 | HDPE 500 mL | Target | Field Blank | Field blank for industrial sampling location. | Indicate what industrial site |
| SJSC | FBS | 1024 | SJSC-FBS-1024 | HDPE 500 mL | Backup | Field Blank | Field blank for industrial sampling location. | |
| SJSC | FBS | 2024 | SJSC-FBS-2024 | HDPE 60 mL | TOP | Field Blank | Field blank for industrial sampling location. | |
| SJSC | FBS | 3024 | SJSC-FBS-3024 | HDPE 60 mL | Backup | Field Blank | Field blank for industrial sampling location. | |
| SJSC | IS | 0031 | SJSC-IS-0031 | HDPE 125 mL | Target | Industrial Laundry | Prudential Overall Supply (MI-040B) | grab sample during setup |
| SJSC | IS | 1031 | SJSC-IS-1031 | HDPE 125 mL | Backup | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 2031 | SJSC-IS-2031 | HDPE 60 mL | TOP | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 3031 | SJSC-IS-3031 | HDPE 60 mL | Backup | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 0032 | SJSC-IS-0032 | HDPE 125 mL | Target | Industrial Laundry | Prudential Overall Supply (MI-040B) | grab sample replicate |
| SJSC | IS | 1032 | SJSC-IS-1032 | HDPE 125 mL | Backup | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 2032 | SJSC-IS-2032 | HDPE 60 mL | TOP | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 3032 | SJSC-IS-3032 | HDPE 60 mL | Backup | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 0033 | SJSC-IS-0033 | HDPE 125 mL | Target | Industrial Laundry | Prudential Overall Supply (MI-040B) | composite sample |
| SJSC | IS | 1033 | SJSC-IS-1033 | HDPE 125 mL | Backup | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 2033 | SJSC-IS-2033 | HDPE 60 mL | TOP | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 3033 | SJSC-IS-3033 | HDPE 60 mL | Backup | Industrial Laundry | Prudential Overall Supply (MI-040B) | |
| SJSC | IS | 0034 | SJSC-IS-0034 | HDPE 125 mL | Target | Industrial Laundry | Alsco (SJ-546B) | |
| SJSC | IS | 1034 | SJSC-IS-1034 | HDPE 125 mL | Backup | Industrial Laundry | Alsco (SJ-546B) | |
| SJSC | IS | 2034 | SJSC-IS-2034 | HDPE 60 mL | TOP | Industrial Laundry | Alsco (SJ-546B) | |
| SJSC | IS | 3034 | SJSC-IS-3034 | HDPE 60 mL | Backup | Industrial Laundry | Alsco (SJ-546B) | |
| SJSC | FBS | 0059 | SJSC-FBS-0059 | HDPE 500 mL | Target | Field Blank | Field blank for industrial sewershed sampling | |
| SJSC | FBS | 1059 | SJSC-FBS-1059 | HDPE 500 mL | Backup | Field Blank | Field blank for industrial sewershed sampling | |
| SJSC | FBS | 2059 | SJSC-FBS-2059 | HDPE 60 mL | TOP | Field Blank | Field blank for industrial sewershed sampling | |
| SJSC | FBS | 3059 | SJSC-FBS-3059 | HDPE 60 mL | Backup | Field Blank | Field blank for industrial sewershed sampling | |
| SJSC | IS | 0061 | SJSC-IS-0061 | HDPE 125 mL | Target | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | grab sample during setup |
| SJSC | IS | 1061 | SJSC-IS-1061 | HDPE 125 mL | Backup | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | |
| SJSC | IS | 2061 | SJSC-IS-2061 | HDPE 60 mL | TOP | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | |
| SJSC | IS | 3061 | SJSC-IS-3061 | HDPE 60 mL | Backup | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | |
| SJSC | IS | 0062 | SJSC-IS-0062 | HDPE 125 mL | Target | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | Composite |
| SJSC | IS | 1062 | SJSC-IS-1062 | HDPE 125 mL | Backup | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | |
| SJSC | IS | 2062 | SJSC-IS-2062 | HDPE 60 mL | TOP | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | |

**Appendix A: Final Sample ID List (date 3/28/2022)**

| POTW | Matrix | Unique Sample Number | Sample ID | Container | Analysis | Industry or Matrix | Location or Description | Sampling Notes |
|---|---|---|---|---|---|---|---|---|
| SJSC | IS | 3062 | SJSC-IS-3062 | HDPE 60 mL | Backup | Pulp Paperboard | Greif Corporation (The Newark Group) (SC-459B) | |
| SJSC | INF | 0072 | SJSC-INF-0072 | HDPE 125 mL | Target | Influent | Influent at SJSC | |
| SJSC | INF | 1072 | SJSC-INF-1072 | HDPE 125 mL | Backup | Influent | Influent at SJSC | |
| SJSC | INF | 2072 | SJSC-INF-2072 | HDPE 60 mL | TOP | Influent | Influent at SJSC | |
| SJSC | INF | 3072 | SJSC-INF-3072 | HDPE 60 mL | Backup | Influent | Influent at SJSC | |
| SJSC | INF | 4072 | SJSC-INF-4072 | HDPE 125 mL | AOF | Influent | Influent at SJSC | |
| SJSC | INF | 5072 | SJSC-INF-5072 | HDPE 125 mL | Backup | Influent | Influent at SJSC | |
| SJSC | INF | 0072 | SJSC-INF-0072 | HDPE 125 mL | Target MS | Influent | Influent at SJSC | Extra sample volume for MS/MSD |
| SJSC | INF | 0072 | SJSC-INF-0072 | HDPE 125 mL | Target MSD | Influent | Influent at SJSC | Extra sample volume for MS/MSD |
| SJSC | INF | 2072 | SJSC-INF-2072 | HDPE 60 mL | TOP MS | Influent | Influent at SJSC | Extra sample volume for MS/MSD |
| SJSC | INF | 2072 | SJSC-INF-2072 | HDPE 60 mL | TOP MSD | Influent | Influent at SJSC | Extra sample volume for MS/MSD |
| SJSC | INF | 4072 | SJSC-INF-4072 | HDPE 125 mL | AOF MS | Influent | Influent at SJSC | Extra sample volume for MS/MSD |
| SJSC | INF | 4072 | SJSC-INF-4072 | HDPE 125 mL | AOF MSD | Influent | Influent at SJSC | Extra sample volume for MS/MSD |
| SJSC | EFF | 0080 | SJSC-EFF-0080 | HDPE 500 mL | Target | Effluent | Effluent at SJSC | |
| SJSC | EFF | 1080 | SJSC-EFF-1080 | HDPE 500 mL | Backup | Effluent | Effluent at SJSC | |
| SJSC | EFF | 2080 | SJSC-EFF-2080 | HDPE 60 mL | TOP | Effluent | Effluent at SJSC | |
| SJSC | EFF | 3080 | SJSC-EFF-3080 | HDPE 60 mL | Backup | Effluent | Effluent at SJSC | |
| SJSC | EFF | 4080 | SJSC-EFF-4080 | HDPE 125 mL | AOF | Effluent | Effluent at SJSC | |
| SJSC | EFF | 5080 | SJSC-EFF-5080 | HDPE 125 mL | Backup | Effluent | Effluent at SJSC | |

# Appendix B: Field Sampling Forms

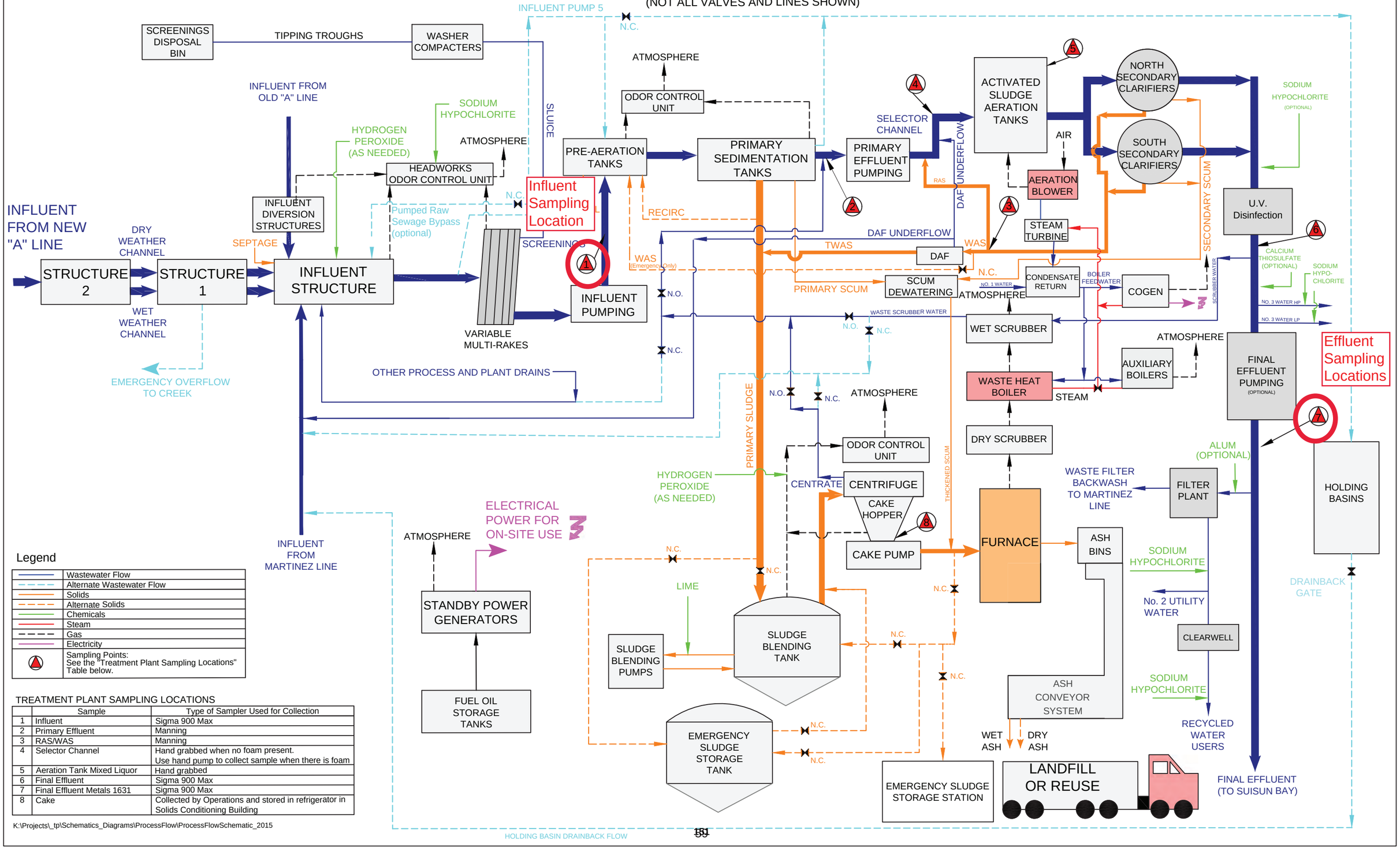
Field sampling forms will be provided to each facility for every sampling event as an excel file.

# Appendix C: POTW Process and Sampling Diagrams

# WASTEWATER TREATMENT PROCESS FLOW SCHEMATIC 2020

## CENTRAL CONTRA COSTA SANITARY DISTRICT

(NOT ALL VALVES AND LINES SHOWN)




### Legend

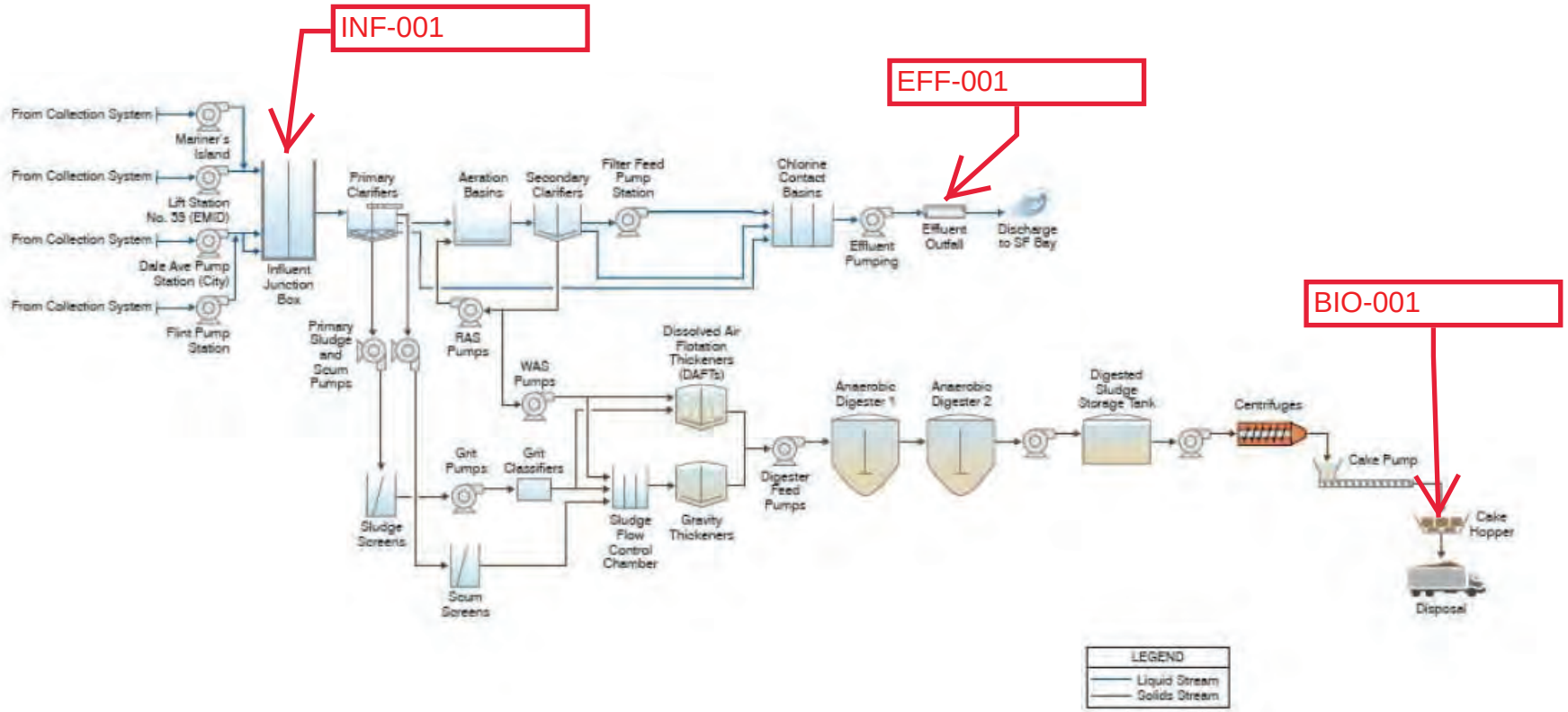
| | |
|---|---|
| | Wastewater Flow |
| | Alternate Wastewater Flow |
| | Solids |
| | Alternate Solids |
| | Chemicals |
| | Steam |
| | Gas |
| | Electricity |
| | Sampling Points: See the "Treatment Plant Sampling Locations" Table below. |

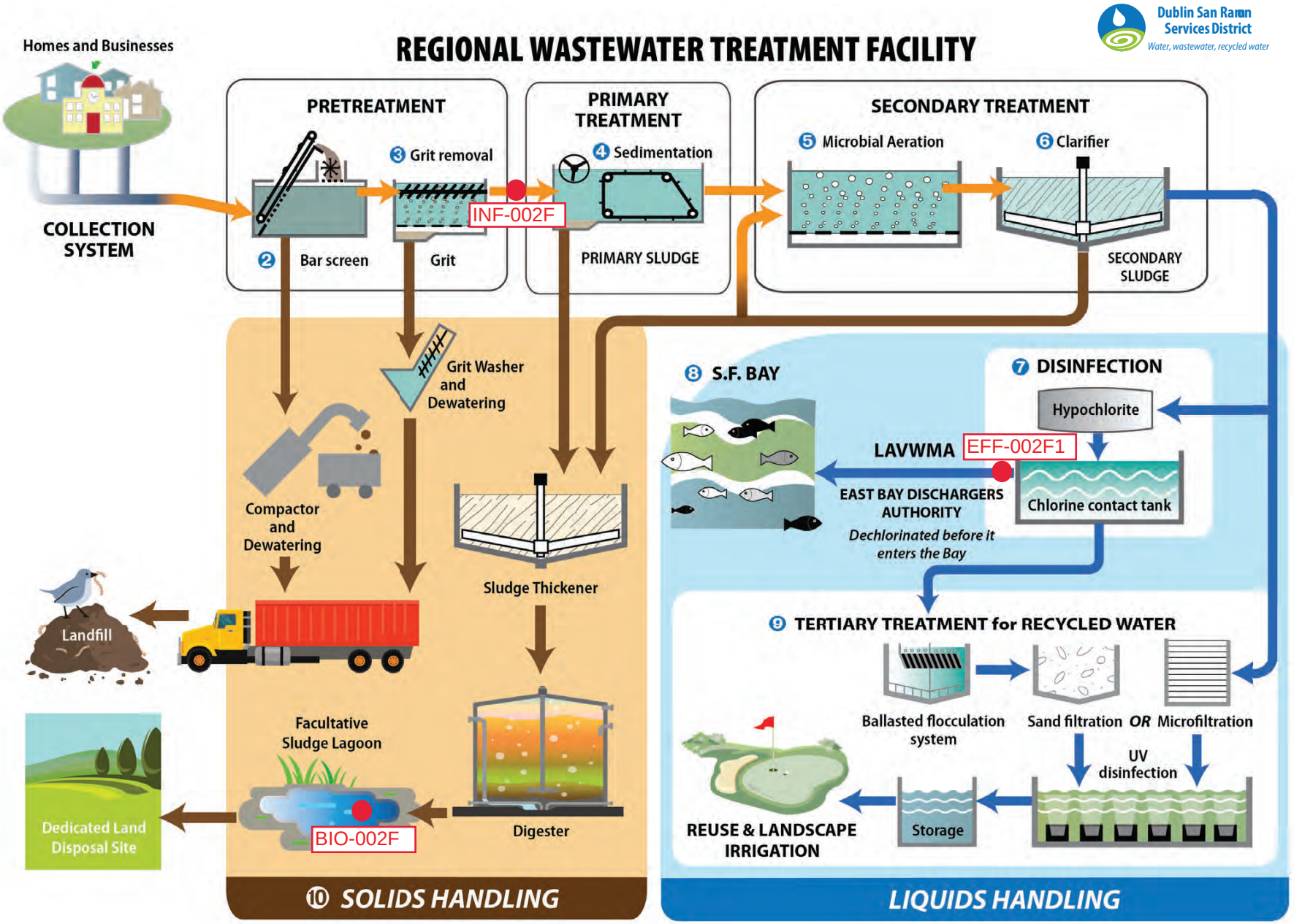
TREATMENT PLANT SAMPLING LOCATIONS

| | Sample | Type of Sampler Used for Collection |
|---|---|---|
| 1 | Influent | Sigma 900 Max |
| 2 | Primary Effluent | Manning |
| 3 | RAS/WAS | Manning |
| 4 | Selector Channel | Hand grabbed when no foam present. Use hand pump to collect sample when there is foam |
| 5 | Aeration Tank Mixed Liquor | Hand grabbed |
| 6 | Final Effluent | Sigma 900 Max |
| 7 | Final Effluent Metals 1631 | Sigma 900 Max |
| 8 | Cake | Collected by Operations and stored in refrigerator in Solids Conditioning Building |

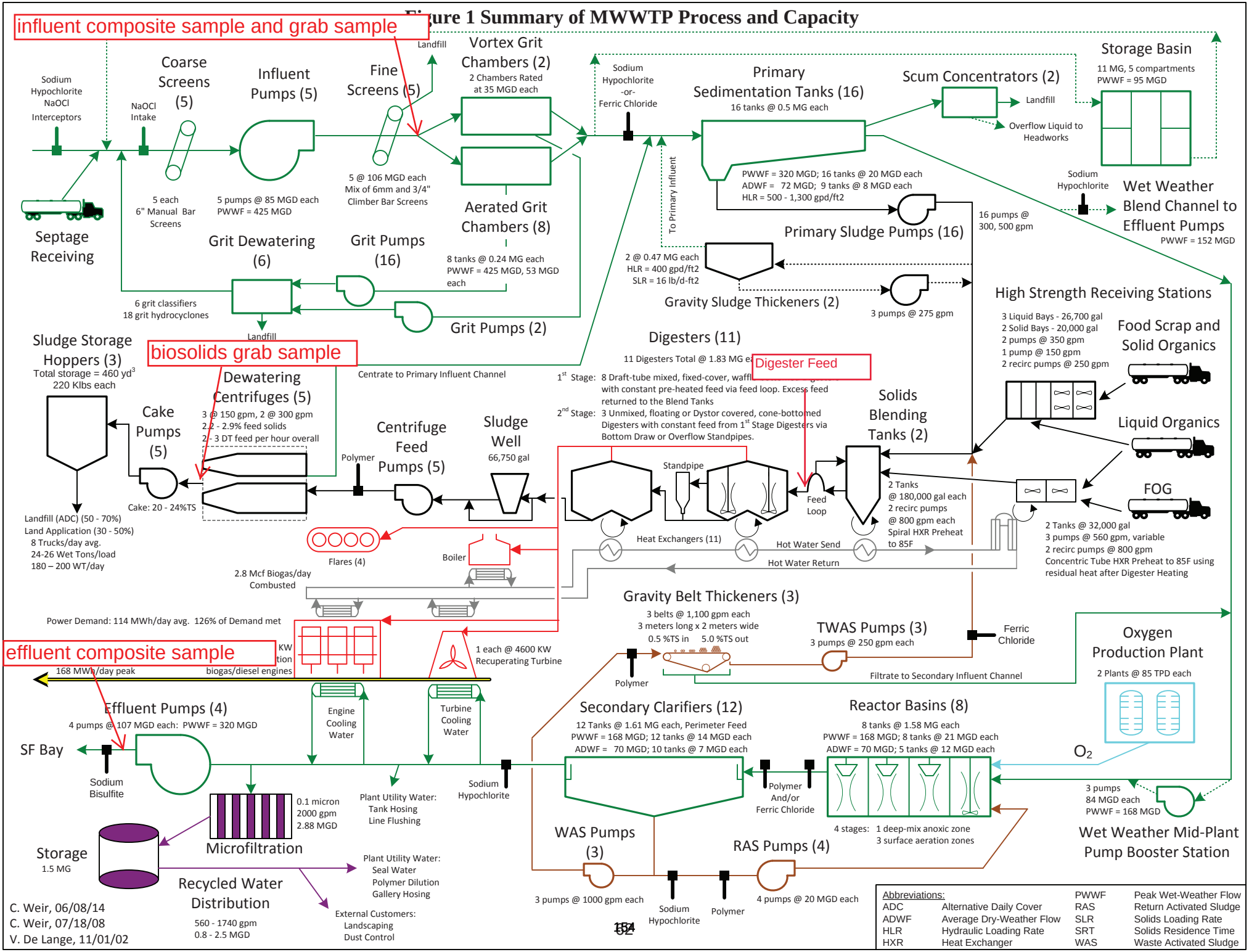
K:\Projects_tp\Schematics_Diagrams\ProcessFlow\ProcessFlowSchematic_2015

City of San Mateo WWTP




Dublin San Ramon Services District
Water, wastewater, recycled water
REGIONAL WASTEWATER TREATMENT FACILITY
Homes and Businesses
COLLECTION SYSTEM
PRETREATMENT
2 Bar screen
3 Grit removal
Grit
INF-002F
PRIMARY TREATMENT
4 Sedimentation
PRIMARY SLUDGE
SECONDARY TREATMENT
5 Microbial Aeration
6 Clarifier
SECONDARY SLUDGE
Grit Washer and Dewatering
Compactor and Dewatering
Sludge Thickener
Landfill
Facultative Sludge Lagoon
Dedicated Land Disposal Site
BIO-002F
Digester
10 SOLIDS HANDLING
8 S.F. BAY
7 DISINFECTION
Hypochlorite
LAVWMA
EFF-002F1
EAST BAY DISCHARGERS AUTHORITY
Dechlorinated before it enters the Bay
Chlorine contact tank
9 TERTIARY TREATMENT for RECYCLED WATER
Ballasted flocculation system
Sand filtration OR Microfiltration
UV disinfection
Storage
REUSE & LANDSCAPE IRRIGATION
LIQUIDS HANDLING

# Figure 1 Summary of MWWTP Process and Capacity

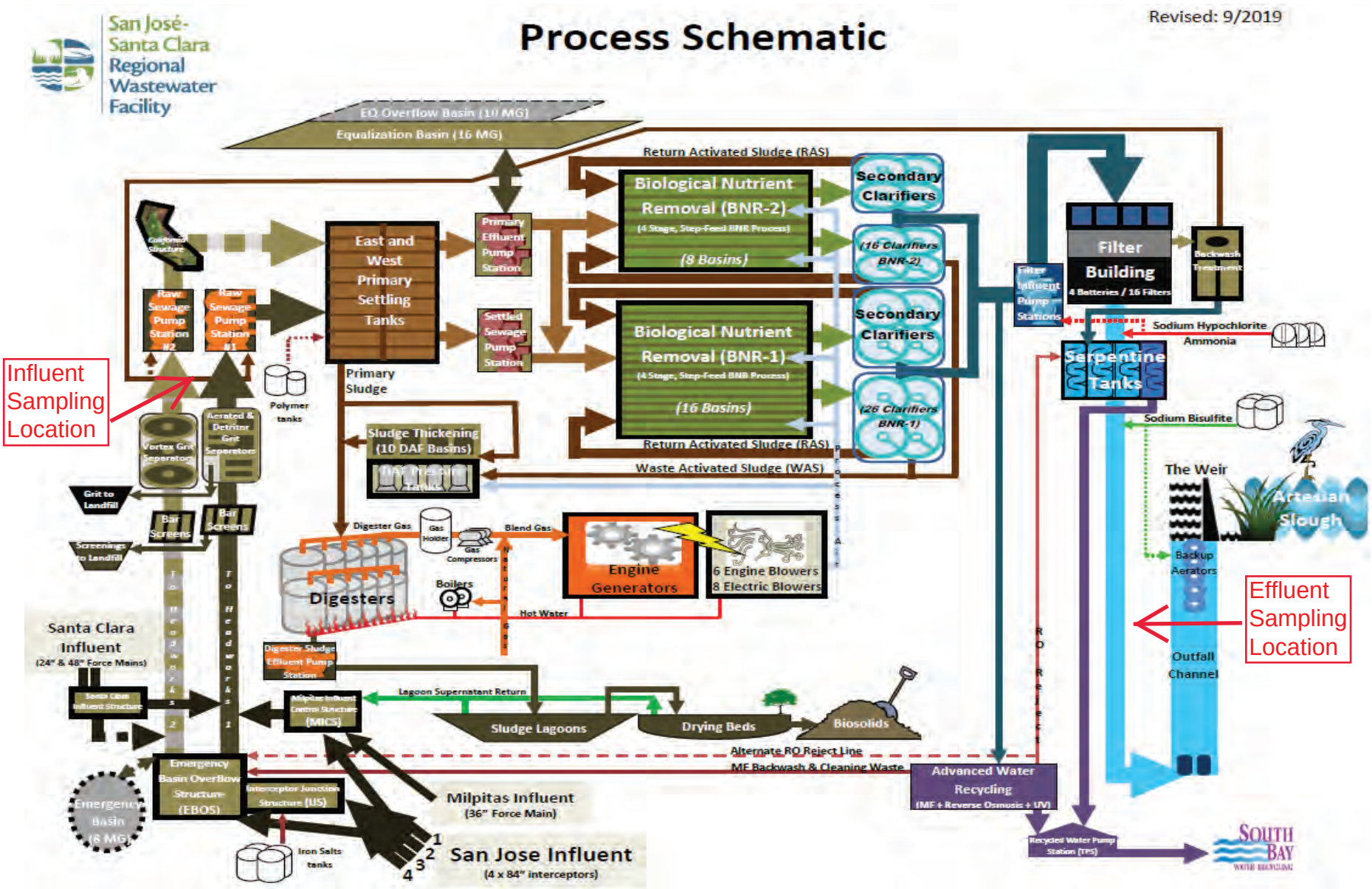



C. Weir, 06/08/14
C. Weir, 07/18/08
V. De Lange, 11/01/02

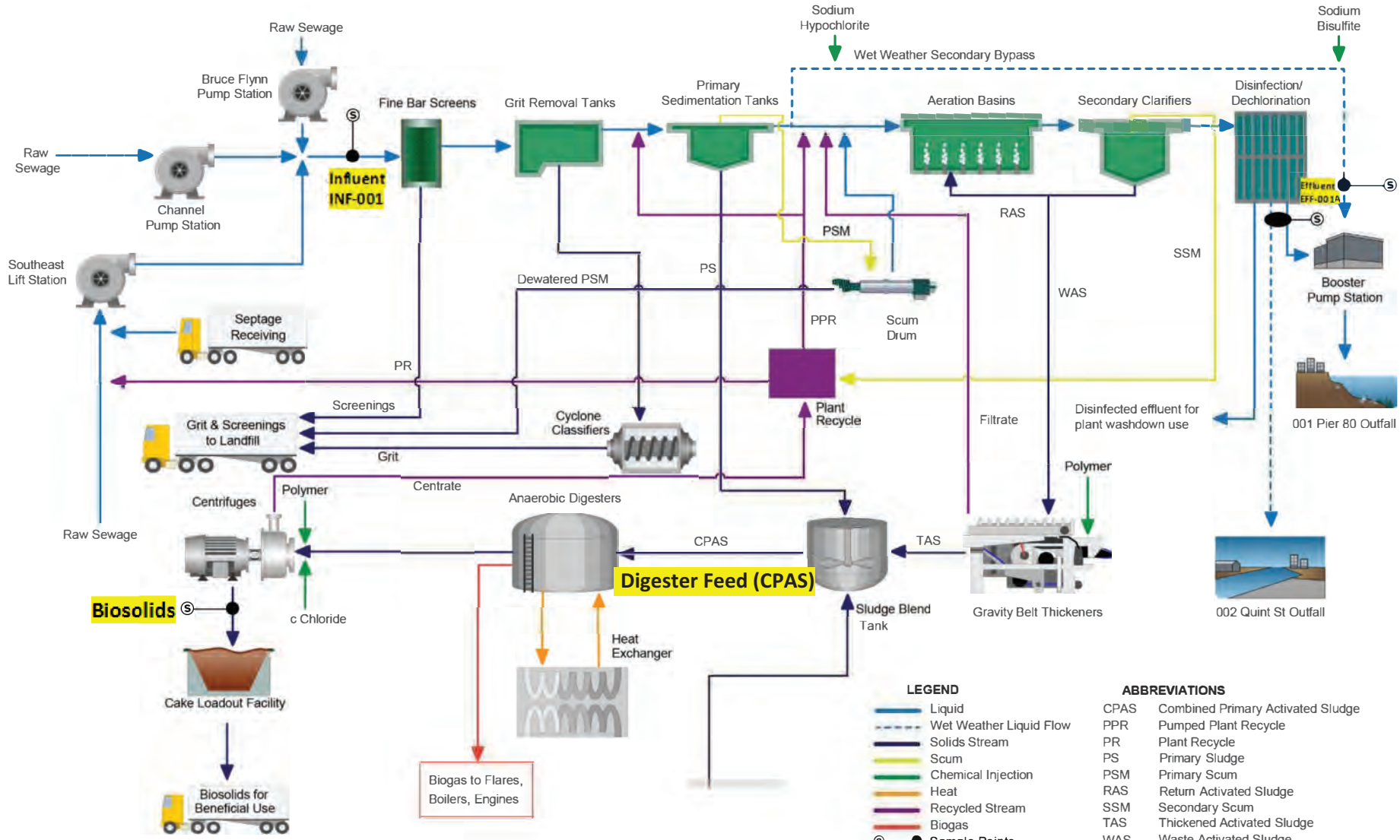
Abbreviations:

| | | | |
|---|---|---|---|
| ADC | Alternative Daily Cover | PWWF | Peak Wet-Weather Flow |
| ADWF | Average Dry-Weather Flow | RAS | Return Activated Sludge |
| HLR | Hydraulic Loading Rate | SLR | Solids Loading Rate |
| HXR | Heat Exchanger | SRT | Solids Residence Time |
| | | WAS | Waste Activated Sludge |

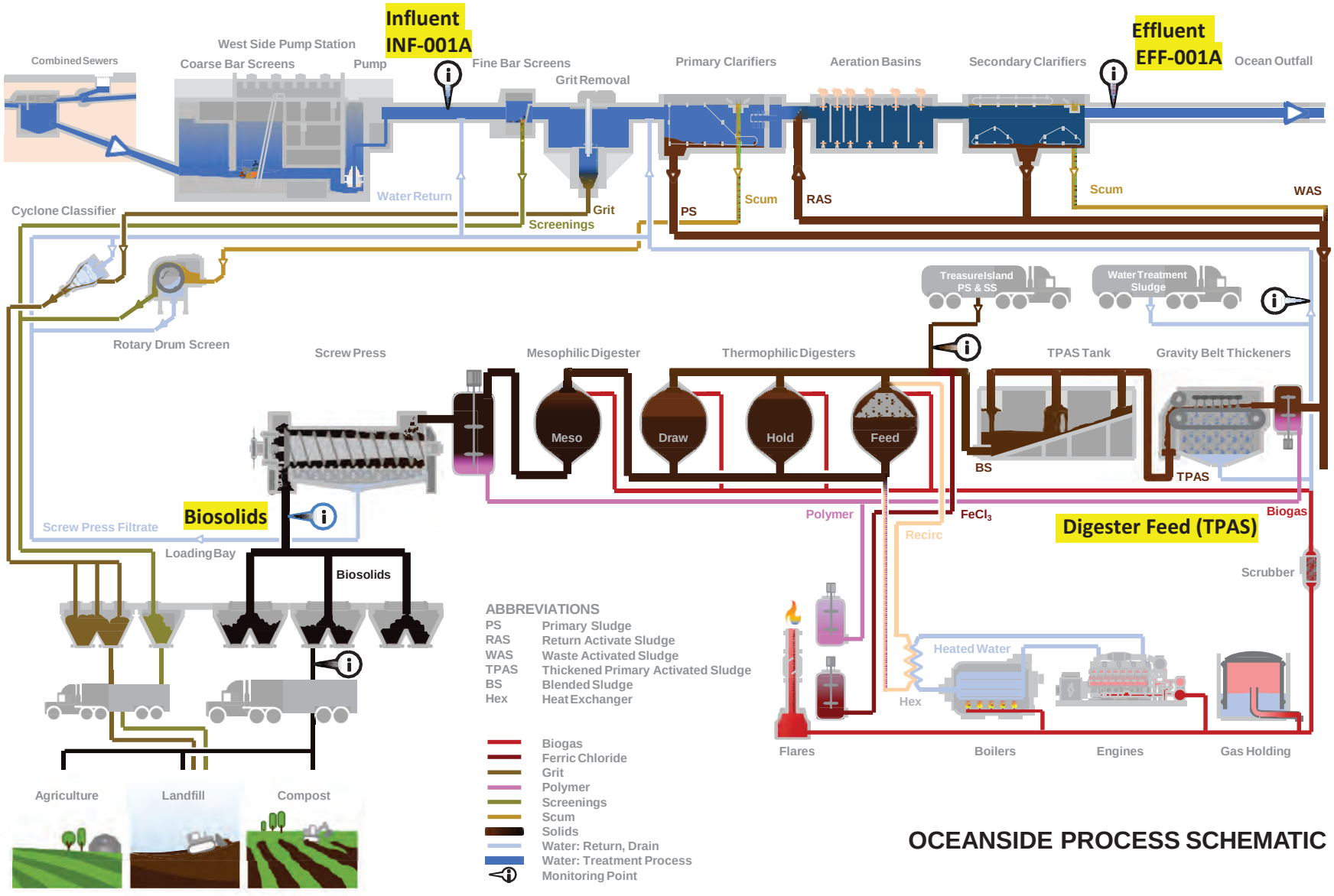
C.


San José-Santa Clara Regional Wastewater Facility
Process Schematic
Revised: 9/2019
EQ Overflow Basin (10 MG)
Equalization Basin (16 MG)
Return Activated Sludge (RAS)
Biological Nutrient Removal (BNR-2)
(4 Stage, Step-Feed BNR Process)
(8 Basins)
Secondary Clarifiers
(16 Clarifiers BNR-2)
Biological Nutrient Removal (BNR-1)
(4 Stage, Step-Feed BNR Process)
(16 Basins)
Secondary Clarifiers
(26 Clarifiers BNR-1)
Filter Building
4 Batteries / 16 Filters
Backwash Treatment
Filter Influent Pump Stations
Sodium Hypochlorite
Ammonia
Serpentine Tanks
Sodium Bisulfite
The Weir
Artesian Slough
Backup Aerators
Outfall Channel
Effluent Sampling Location
Influent Sampling Location
East and West Primary Settling Tanks
Primary Effluent Pump Station
Settled Sewage Pump Station
Raw Sewage Pump Station #2
Raw Sewage Pump Station #1
Primary Sludge
Polymer tanks
Sludge Thickening (10 DAF Basins)
Waste Activated Sludge (WAS)
Return Activated Sludge (RAS)
Vortex Grit Separators
Aerated & Detritor Grit Separators
Grit to Landfill
Bar Screens
Screenings to Landfill
Digester Gas
Gas Holder
Gas Compressors
Blend Gas
Digesters
Boilers
Natural Gas
Hot Water
Engine Generators
6 Engine Blowers
8 Electric Blowers
Digester Sludge Effluent Pump Station
Santa Clara Influent
(24" & 48" Force Mains)
To Headworks 1
To Headworks 2
Milpitas Influent Control Structure (MICS)
Lagoon Supernatant Return
Sludge Lagoons
Drying Beds
Biosolids
Alternate RO Reject Line
MF Backwash & Cleaning Waste
RO Reject
Advanced Water Recycling
(MF + Reverse Osmosis + UV)
Recycled Water Pump Station (TPS)
South Bay Water Recycling
Emergency Basin Overflow Structure (EBOS)
Emergency Basin (8 MG)
Interceptor Junction Structure (IJS)
Iron Salts tanks
Milpitas Influent
(36" Force Main)
San Jose Influent
(4 x 84" interceptors)
1
2
3
4

# ATTACHMENT D
# Plant Process Schematic
# Southeast Water Pollution Control Plant



# ATTACHMENT C
# Plant Process Schematic
# Oceanside Water Pollution Control Plant




## OCEANSIDE PROCESS SCHEMATIC

# Appendix D: Shipping Kit and Shipping Instructions

| Facility | Shipping Address | 500 mL HDPE Aqueous | 125 mL HDPE Aqueous | 60 mL HDPE Aqueous | 250 mL HDPE solids | PFAS Free Reagent Water |
|---|---|---|---|---|---|---|
| CCCSD | ATTN: Blake Brown<br>Central San<br>5019 Imhoff Place<br>Martinez, CA 94553 | 9 | 33 | 33 | | 6 |
| CSM | ATTN: Xiongbing Liang<br>City of San Mateo WWTP<br>2050 Detroit Dr<br>San Mateo, CA 94404 | 4 | 9 | 6 | 3 | 2 |
| DSRSD | DSRSD Laboratory<br>Attn: Connie Sanchez<br>7399 Johnson Drive<br>Pleasanton, CA 94588 | 15 | 18 | 23 | 3 | 5 |
| EBMUD | ATTN: David Williams<br>EBMUD WWTP, Field Services MS 59<br>2020 Wake Ave<br>Oakland, CA 94607 | 8 | 30 | 25 | 11 | 2 |
| SFPUC (POTW supplies) | ATTN: Dolson Kwan, PFAS Study<br>Southeast Treatment Plant, Lab Sample Recieving<br>750 Phelps St.<br>San Francisco, CA, 94124 | 8 | 20 | 10 | 12 | 2 |
| SFPUC (sewershed supplies) | ATTN: Mark Middleton, PFAS Study<br>SFPUC Field Monitoring Services<br>111 Bay St.<br>San Francisco, CA, 94133 | 6 | 60 | 58 | | 6 |
| SJSC | ATTN:  Alex Chieh/Sample Receiving<br>San Jose-Santa Clara Regional Wastewater Facility,<br>ESD Laboratory<br>4235 Zanker Road<br>San Jose, CA 95134 | 12 | 60 | 65 | | 6 |

SGS AXYS

## PREPARING AND SHIPPING SAMPLES TO SGS AXYS

### LABELING

- Follow procedures described in section 6 of Study of Per- and Polyfluoroalkyl Substances in Bay Area POTWs: Phase 1 Sampling and Analysis Plan.

### CHAIN OF CUSTODY (COC)

- Follow procedures described in section 7 of Study of Per- and Polyfluoroalkyl Substances in Bay Area POTWs: Phase 1 Sampling and Analysis Plan.

- Original copy is placed inside a ziptop plastic bag and placed inside the cooler.

### PACKAGING

1. Freeze all samples before packaging (if possible, also cool shipping container).
2. Place layer of bagged wet ice at bottom of cooler.
3. Place a layer of bubble wrap over the ice
4. Place each sample in a separate zip top bag lay over to of the bubble wrap layer.
5. Place a layer of bubble wrap over the sample containers.
6. Fill all remaining space with bagged wet ice.
7. Place Chain of Custody documents inside the cooler.
8. Close cooler and secure with tape.

### SHIPPING DOCUMENTS

Complete and attach all required shipping documents to the **outside** of container.

- FedEx waybill – See waybill instructions and example waybill below.
- 3 Copies of Commercial Invoice - Sign; date; add waybill number* - 2 copies included with waybill; 3rd copy to courier

*FedEx waybill number is the tracking number (top right-hand corner).

### Commercial Invoice

Fill the remaining sections of the commercial invoice

- Date of exportation
- Shipper/exporter information
- Waybill number (same as FedEx tracking number)
- No. of PKGS = number of coolers
- Qty. = number of samples
- Total value = QTY x $5
- Total invoice value = total value if one cooler
- Total invoice value = total value x no of PKGS if more than one cooler being shipped

**International Air Waybill Instructions**

**Section 1: "From"**

Enter Shipper's information as completely as possible

**Section 2: "To"**

Enter our address as follows:

Sample Receiving
SGS AXYS Analytical Services Ltd.
2045 Mills Road W
Sidney B.C. V8L 5X2
Phone: 250-655-5800

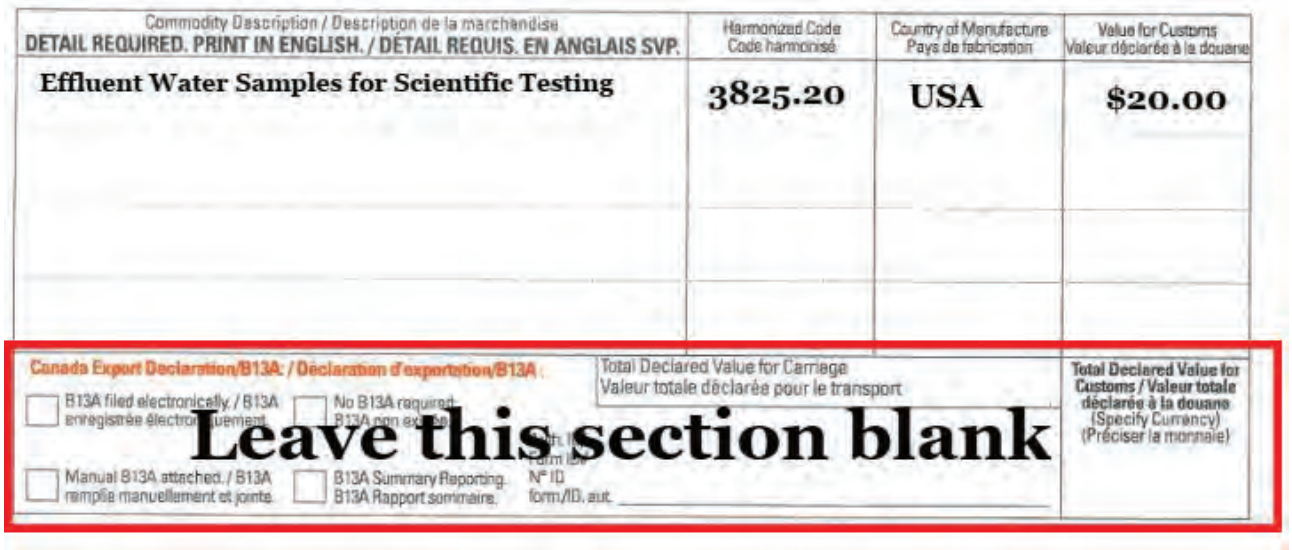
**Section 3: "Shipment Information"**

Enter total number of packages, total weight, and dimensions. Don't enter any declared value.

- Enter the approximate dimensions in the dimensions section.
- Commodity description can be taken from the commercial invoice. See example for 4 effluent samples below.
- Use Harmonized Sales Code **provided on commercial invoice.**
- Country of Manufacture is the USA.
- Enter the total customs value. Use a nominal value of $5.00 per bottle.

Note, Canada Export Declaration is not applicable. Leave this section blank.

Example:



**Section 4: “Express Package Service”**

- Select “**FedEx International Priority**”,

**Section 5: “Packaging”**

- Select “Other” and write “cooler”.

**Section 6: “Special Handling and Delivery options”**

- Select “Direct Signature”

**Section 7: “Payment”**

Bill transportation charges to:

- Select “Sender” and fill in your FedEx account number.

Bill Customs charges to:

- Select “Recipient”

**Section 8: “Required Signature”**

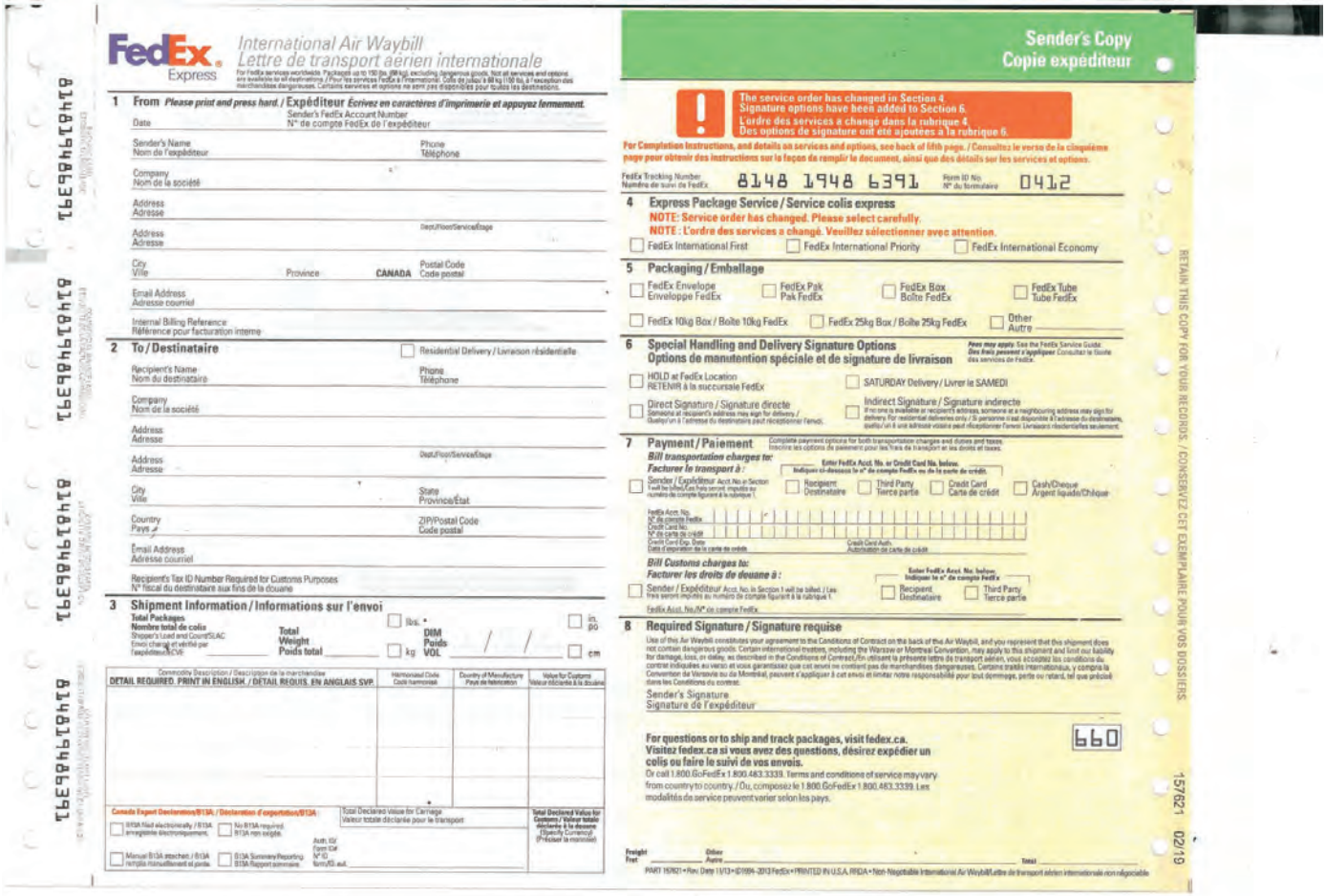
Sign your name

**SHIPPING DATE**

Please do not ship later than Wednesday afternoon to ensure that if there is delays samples are not sitting over the weekend.

**Should you have any questions/concerns regarding the completion of the shipping documentation or packaging of samples, please contact your dedicated SGS AXYS Project Manager.**

**EXAMPLE FEDEX WAYBILL**



FedEx Express

International Air Waybill
Lettre de transport aerien internationale

Sender's Copy
Copie expéditeur

The service order has changed in Section 4.
Signature options have been added to Section 6.
L'ordre des services a changé dans la rubrique 4.
Des options de signature ont été ajoutées à la rubrique 6.

For Completion Instructions, and details on services and options, see back of fifth page. / Consultez le verso de la cinquième page pour obtenir des instructions sur la façon de remplir le document, ainsi que des détails sur les services et options.

FedEx Tracking Number / Numéro de suivi de FedEx: 8148 1948 6391
Form ID No. / N° du formulaire: 0412

1 From Please print and press hard. / Expéditeur Écrivez en caractères d'imprimerie et appuyez fermement.
Sender's FedEx Account Number / N° de compte FedEx de l'expéditeur
Date
Sender's Name / Nom de l'expéditeur
Phone / Téléphone
Company / Nom de la société
Address / Adresse
Dept/Floor/Service/Étage
Address / Adresse
City / Ville
Province
CANADA
Postal Code / Code postal
Email Address / Adresse courriel
Internal Billing Reference / Référence pour facturation interne

2 To / Destinataire
Residential Delivery / Livraison résidentielle
Recipient's Name / Nom du destinataire
Phone / Téléphone
Company / Nom de la société
Address / Adresse
Dept/Floor/Service/Étage
Address / Adresse
City / Ville
State / Province/État
Country / Pays
ZIP/Postal Code / Code postal
Email Address / Adresse courriel
Recipient's Tax ID Number Required for Customs Purposes / N° fiscal du destinataire aux fins de la douane

3 Shipment Information / Informations sur l'envoi
Total Packages / Nombre total de colis
Shipper's Load and Count/SLAC / Envoi chargé et vérifié par l'expéditeur/SCVE
Total Weight / Poids total
lbs. / kg
DIM / Poids VOL
in. / po / cm
Commodity Description / Description de la marchandise
DETAIL REQUIRED. PRINT IN ENGLISH. / DÉTAIL REQUIS. EN ANGLAIS SVP.
Harmonized Code / Code harmonisé
Country of Manufacture / Pays de fabrication
Value for Customs / Valeur déclarée à la douane
Canada Export Declaration/B13A / Déclaration d'exportation/B13A
B13A filed electronically / B13A enregistrée électroniquement
No B13A required. / B13A non exigée.
Manual B13A attached / B13A remplie manuellement et jointe
B13A Summary Reporting / B13A Rapport sommaire
Auth. ID/ Form ID# / N° ID formulaire aut.
Total Declared Value for Carriage / Valeur totale déclarée pour le transport
Total Declared Value for Customs / Valeur totale déclarée à la douane (Specify Currency) (Préciser la monnaie)

4 Express Package Service / Service colis express
NOTE: Service order has changed. Please select carefully.
NOTE : L'ordre des services a changé. Veuillez sélectionner avec attention.
FedEx International First
FedEx International Priority
FedEx International Economy

5 Packaging / Emballage
FedEx Envelope / Enveloppe FedEx
FedEx Pak / Pak FedEx
FedEx Box / Boîte FedEx
FedEx Tube / Tube FedEx
FedEx 10kg Box / Boîte 10kg FedEx
FedEx 25kg Box / Boîte 25kg FedEx
Other / Autre

6 Special Handling and Delivery Signature Options / Options de manutention spéciale et de signature de livraison
Fees may apply. See the FedEx Service Guide. / Des frais peuvent s'appliquer. Consultez le Guide des services de FedEx.
HOLD at FedEx Location / RETENIR à la succursale FedEx
SATURDAY Delivery / Livrer le SAMEDI
Direct Signature / Signature directe
Indirect Signature / Signature indirecte

7 Payment / Paiement
Complete payment options for both transportation charges and duties and taxes. / Inscrire les options de paiement pour les frais de transport et les droits et taxes.
Bill transportation charges to: / Facturer le transport à :
Enter FedEx Acct. No. or Credit Card No. below. / Indiquer ci-dessous le n° de compte FedEx ou de la carte de crédit.
Sender / Expéditeur
Recipient / Destinataire
Third Party / Tierce partie
Credit Card / Carte de crédit
Cash/Cheque / Argent liquide/Chèque
FedEx Acct. No. / N° de compte FedEx
Credit Card No. / N° de carte de crédit
Credit Card Exp. Date / Date d'expiration de la carte de crédit
Credit Card Auth. / Autorisation de carte de crédit
Bill Customs charges to: / Facturer les droits de douane à :
Enter FedEx Acct. No. below. / Indiquer le n° de compte FedEx
Sender / Expéditeur
Recipient / Destinataire
Third Party / Tierce partie
FedEx Acct. No./N° de compte FedEx

8 Required Signature / Signature requise
Use of this Air Waybill constitutes your agreement to the Conditions of Contract on the back of this Air Waybill, and you represent that this shipment does not contain dangerous goods. Certain international treaties, including the Warsaw or Montreal Convention, may apply to this shipment and limit our liability for damage, loss, or delay, as described in the Conditions of Contract. En utilisant la présente lettre de transport aérien, vous acceptez les conditions du contrat indiquées au verso et vous garantissez que cet envoi ne contient pas de marchandises dangereuses. Certains traités internationaux, y compris la Convention de Varsovie ou de Montréal, peuvent s'appliquer à cet envoi et limiter notre responsabilité pour tout dommage, perte ou retard, tel que précisé dans les Conditions du contrat.
Sender's Signature / Signature de l'expéditeur

For questions or to ship and track packages, visit fedex.ca.
Visitez fedex.ca si vous avez des questions, désirez expédier un colis ou faire le suivi de vos envois.
Or call 1.800.GoFedEx 1.800.463.3339. Terms and conditions of service may vary from country to country. / Ou, composez le 1.800.GoFedEx 1.800.463.3339. Les modalités de service peuvent varier selon les pays.

660

Freight / Fret
Other / Autre
Total

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RETAIN THIS COPY FOR YOUR RECORDS. / CONSERVEZ CET EXEMPLAIRE POUR VOS DOSSIERS.

157621 02/19

# Appendix E: AOF Reporting Limit

# Characterizing PFAS in California's Drinking Water and Groundwater

April 5, 2022

State Water Board Informational Item #5

CALIFORNIA
Water Boards

Divisions of Drinking Water, Water Quality, and Financial Assistance

# State Water Board PFAS Presentation

**REPRESENTATIVES**

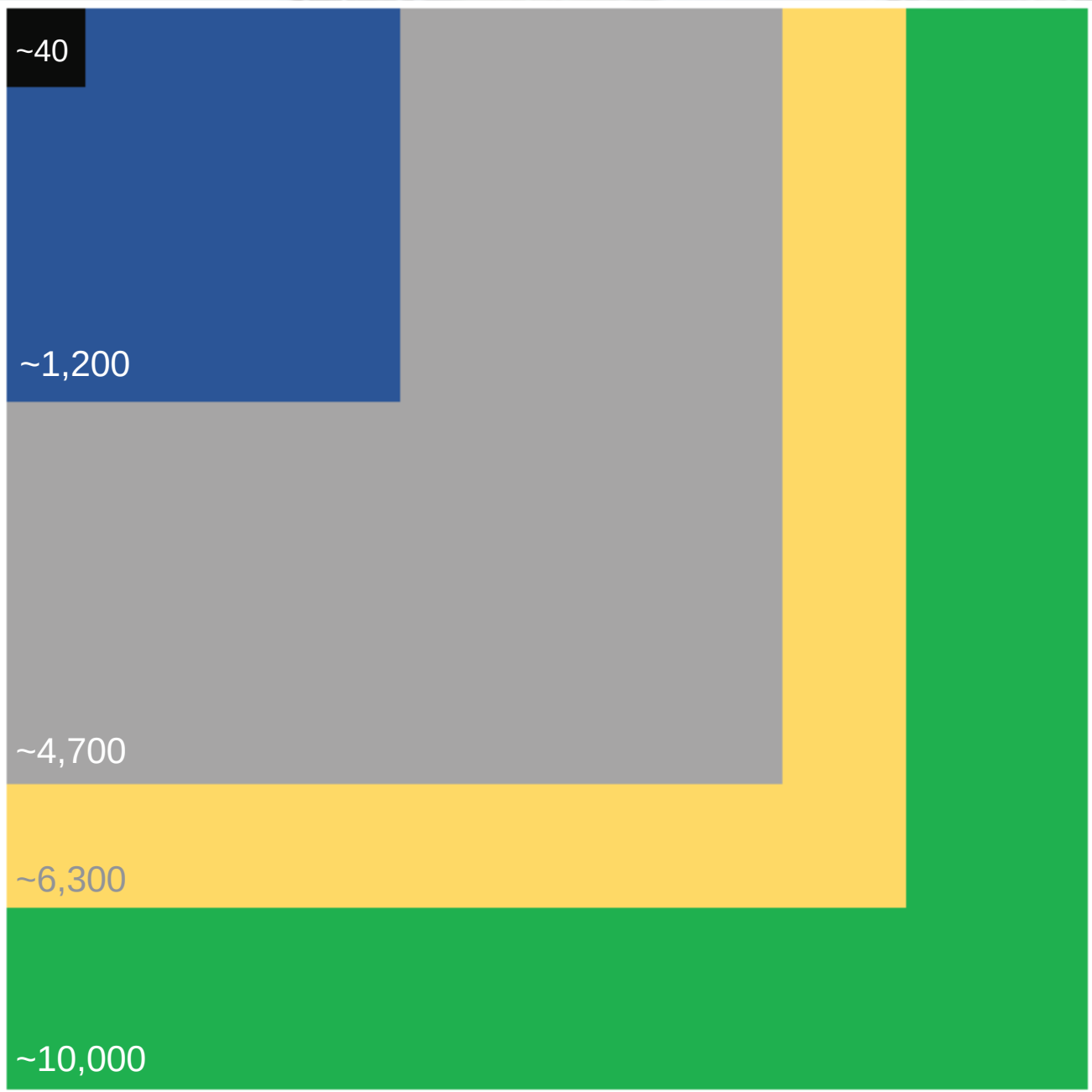
Wendy Linck, PG, PMP
*Senior Engineering Geologist*
Division of Water Quality

Daniel Newton, PE
*Assistant Deputy Director*
Division of Drinking Water

Matt Pavelchik, PG
*Senior Engineering Geologist*
Division of Financial Assistance

**OUTLINE**

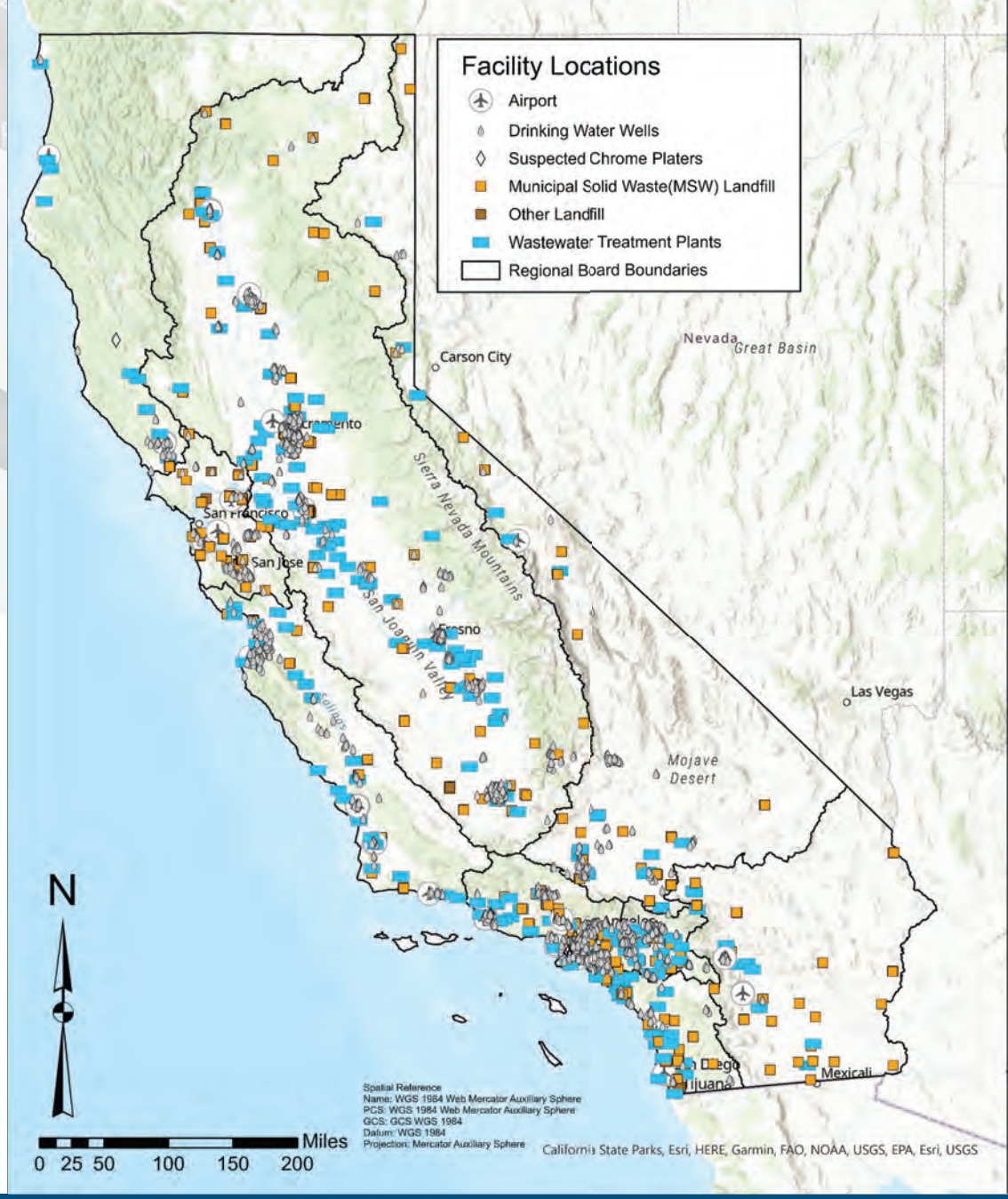
- Our Awareness of PFAS
- Our Focus on Industrial Investigations
- Summary of State-Wide Industry Investigation Results
- Summary of Drinking Water Results
- Shift in the Drinking Water Testing Method
- Use of an Unconventional Approach to Understand Total PFAS in Drinking Water
- Upcoming State Water Board and EPA Actions for PFAS
- Overview of State Funding Opportunities for Drinking Water-Related Projects




# Perspective on the PFAS Class

- USEPA Analytical Methods
- Non-Target Analysis (NTA)
- OECD Global PFAS Database
- USEPA PFAS Master Description
- USEPA PFAS Master List

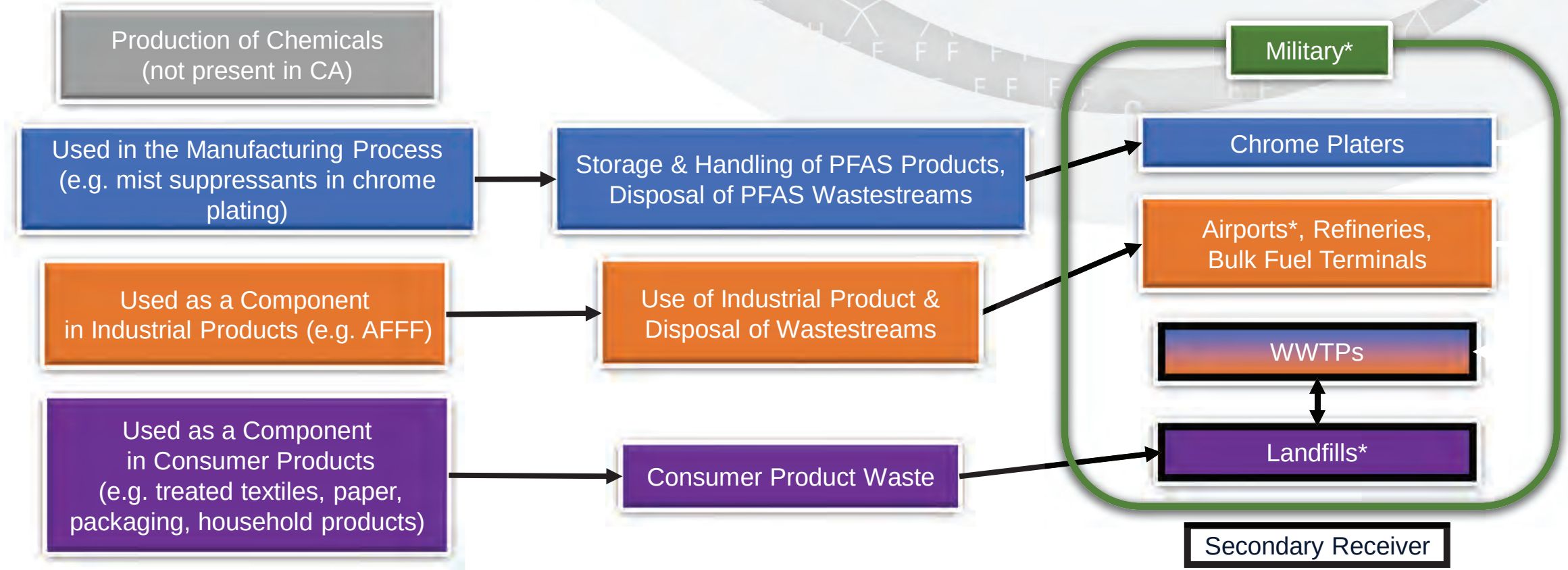
# Occurrence of PFAS at Industries is Being Gathered State-Wide



# Water Board Focuses on Industry Investigations for PFAS

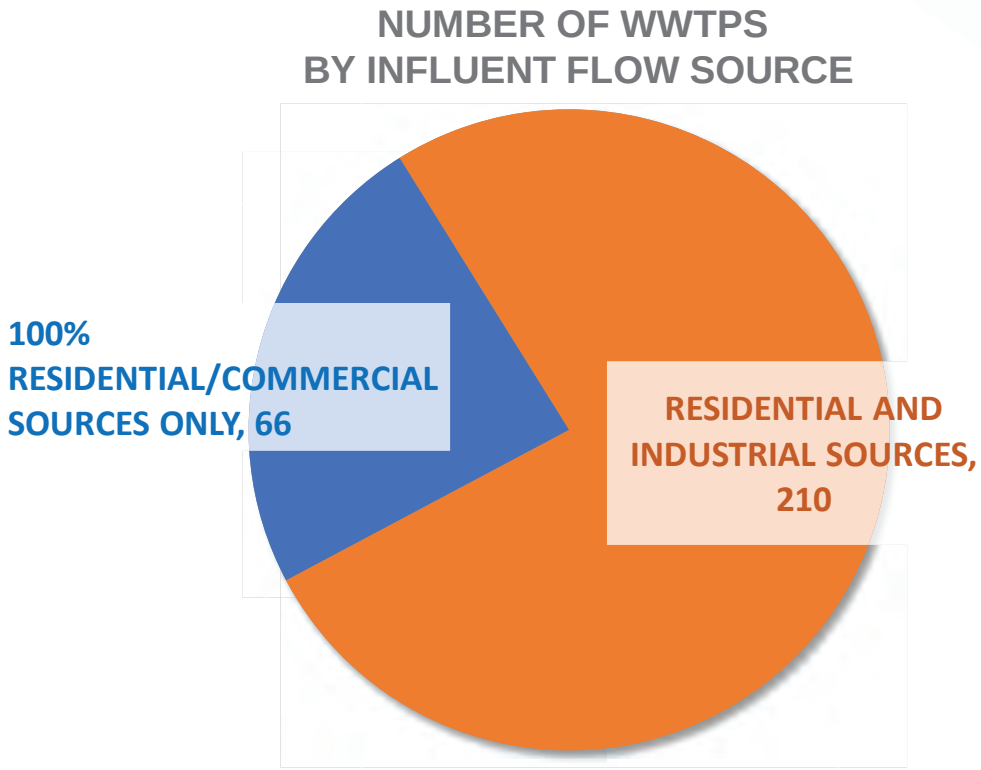
**POTENTIAL USE CATEGORIES**

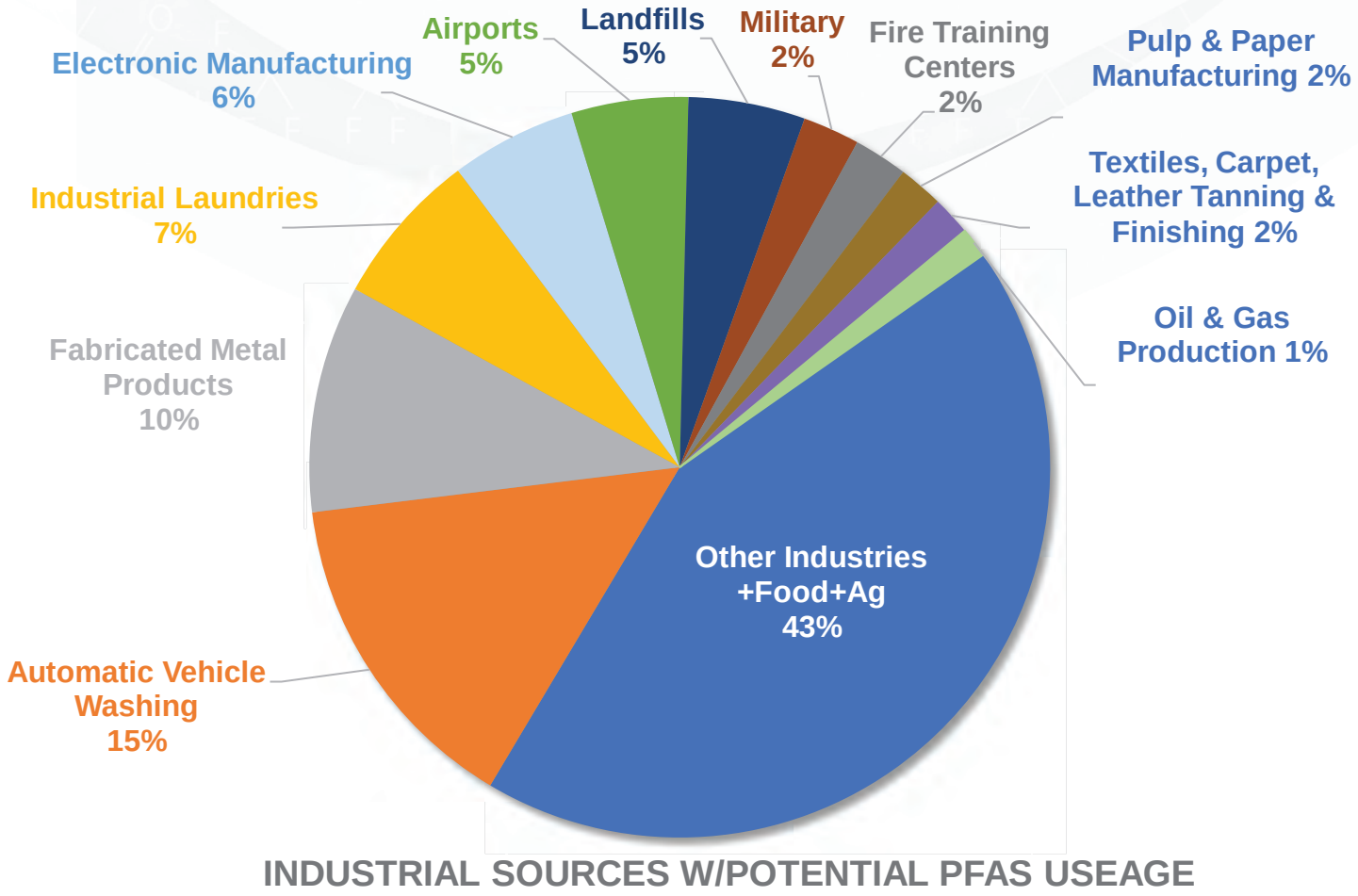
**AFFECTED INDUSTRIES**




***Ongoing drinking water well testing for PFAS**

# Over 50% of the Industrial Sources in Wastewater are Potential Sources of PFAS



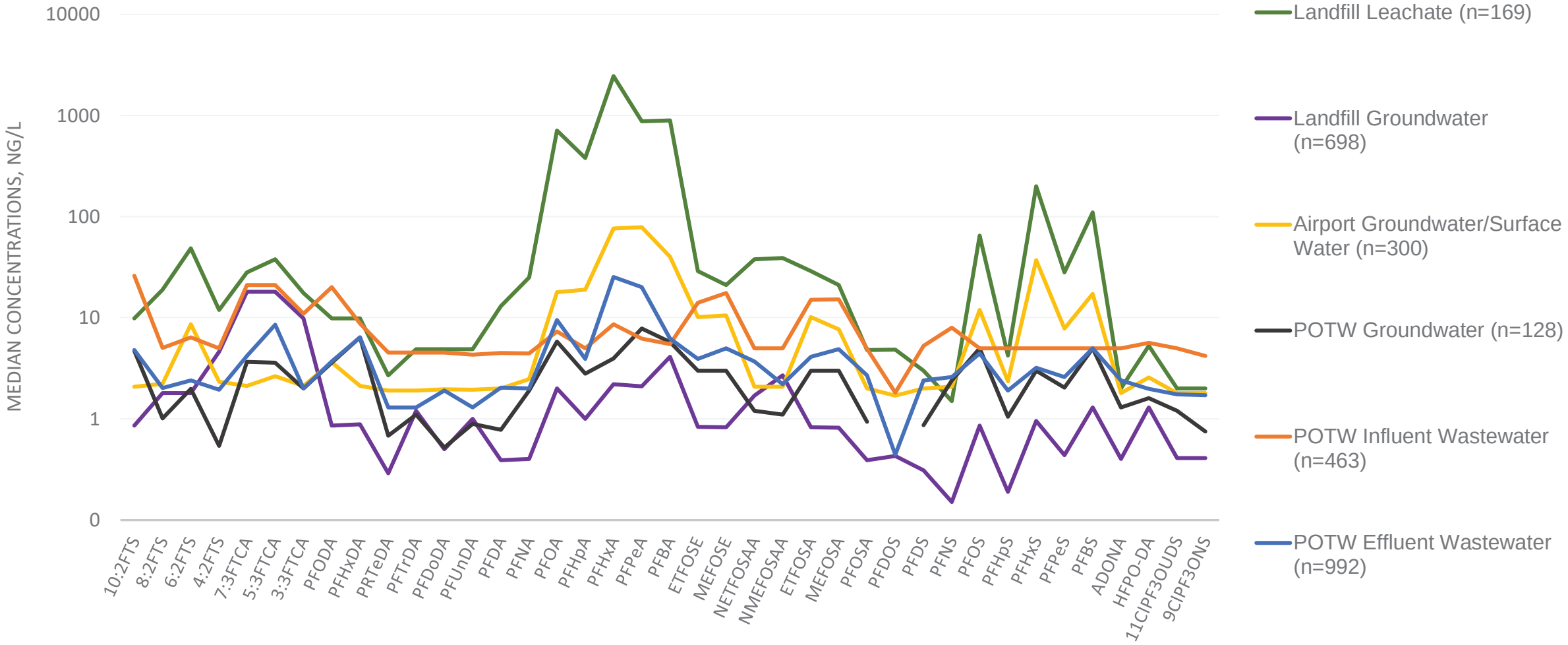
# State-wide Industry Investigative Orders has provided vital information but there are gaps

| Media | Chrome Platers | Airports | Landfills | POTWs | Bulk Fuel Terminals/ Refineries |
|---|---|---|---|---|---|
| Soil | | | | * *Includes biosolids* | |
| Groundwater | | | | | |
| Stormwater | | | | | |
| Surface Water/ Sediment | | | | | |
| Wastewater | | | * *Includes leachate* | | |

| To be assessed | Not Detected to Low Concentrations (<100 ppt) | Moderate Concentrations (100 ppt to 5,000 ppt) | Significant Concentrations (>5,000 ppt) |
|---|---|---|---|

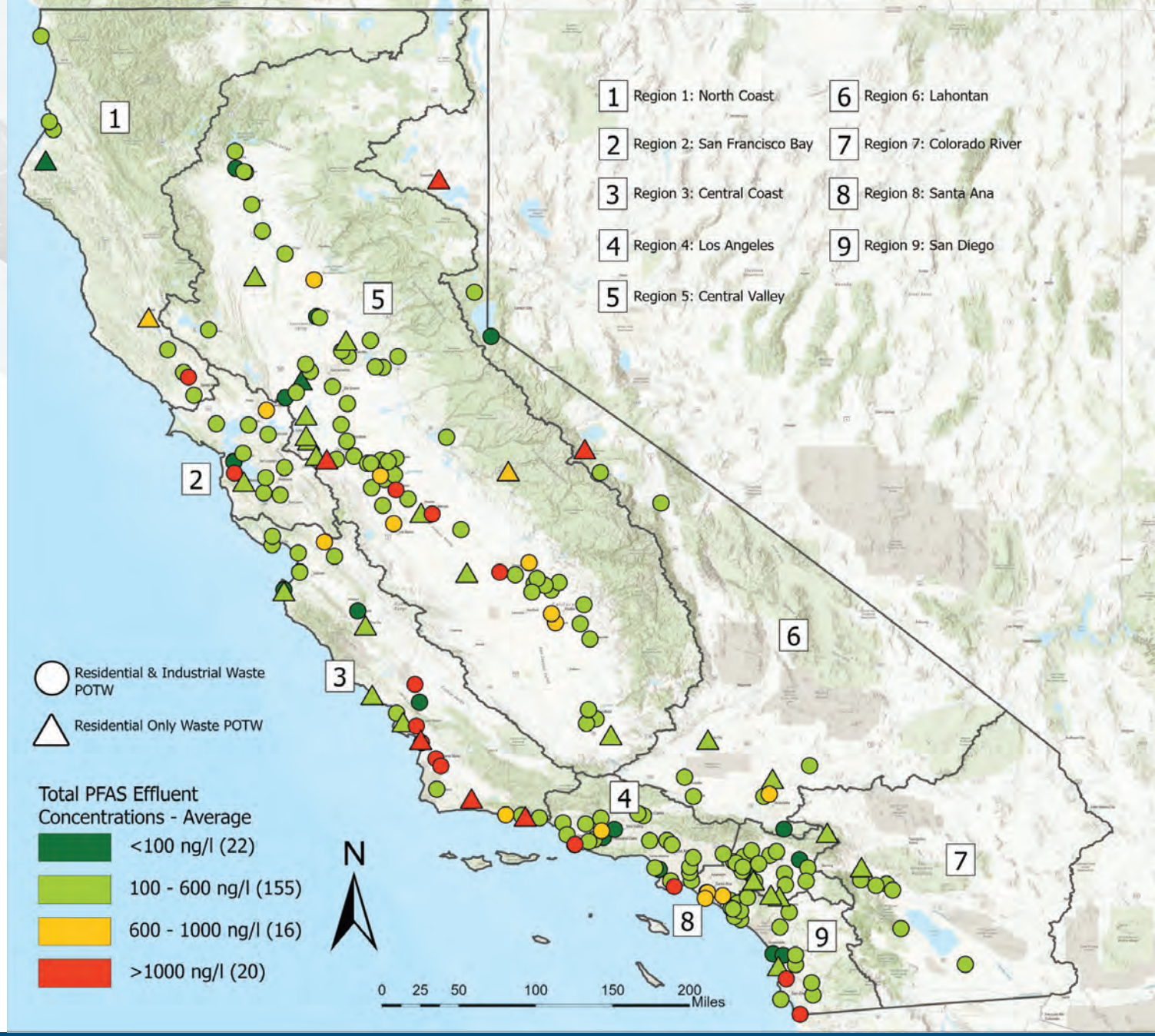
All matrices were analyzed using the DoD QSM with 25 to 38 analytes.

# Median Concentrations in Industry Investigation Samples are less than 100 ng/L except Landfill Leachate



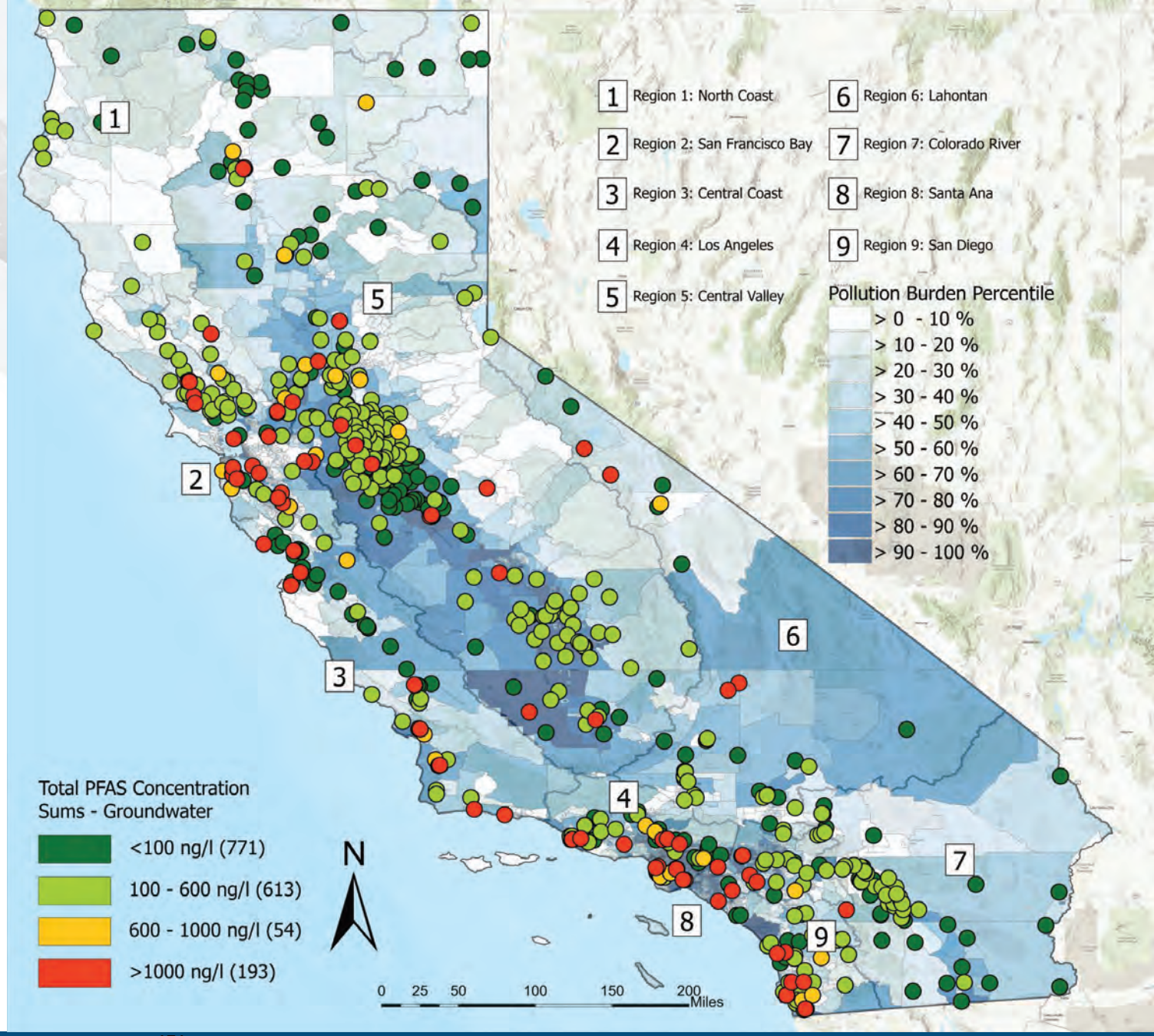

Data downloaded Jan to Feb 2022

# PFAS is in Wastewater



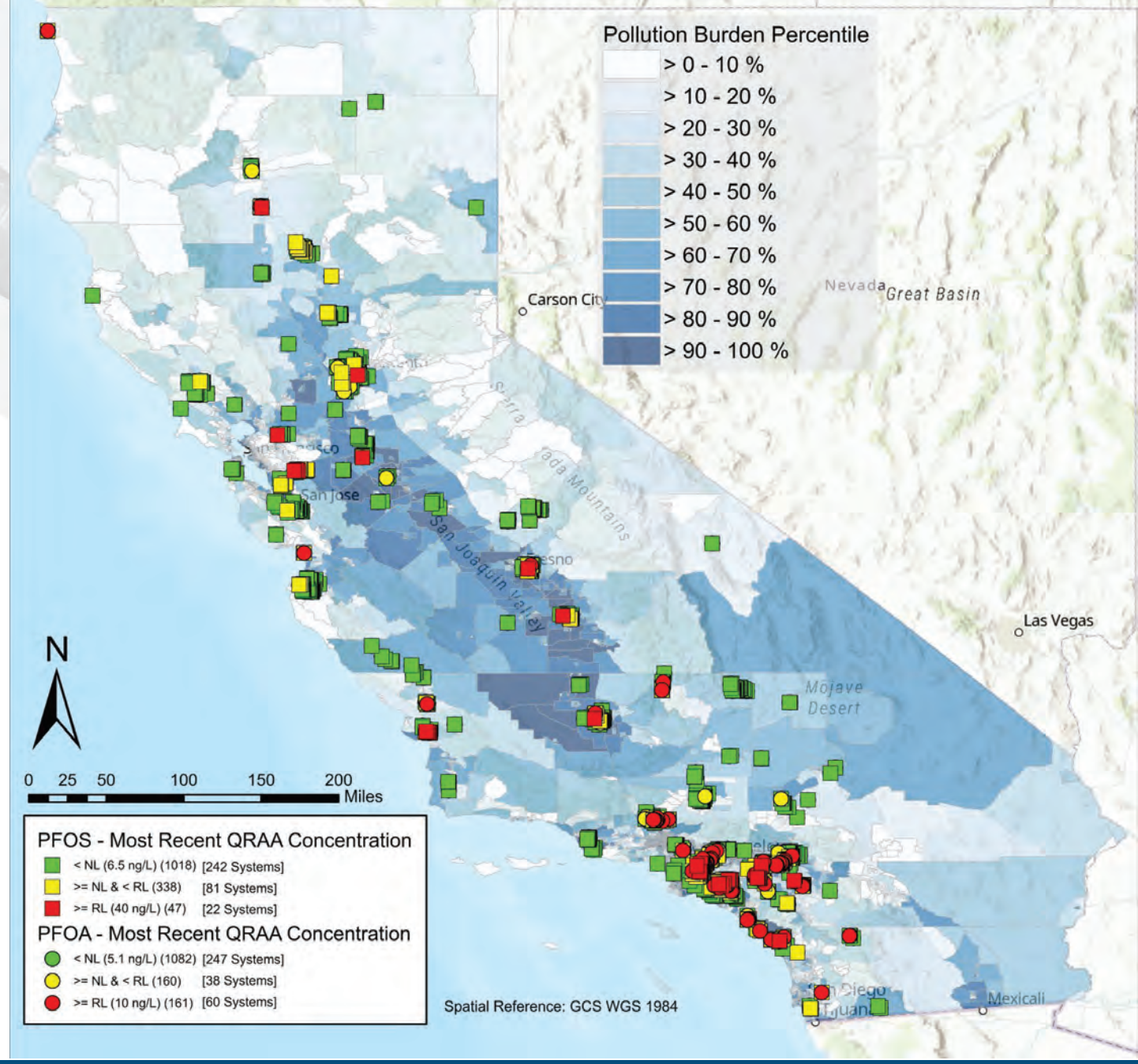

Data downloaded in February 2022
Samples analyzed using the DoD QSM (38 analytes)

# PFAS in Groundwater – Initial Observations of Pollution Burden



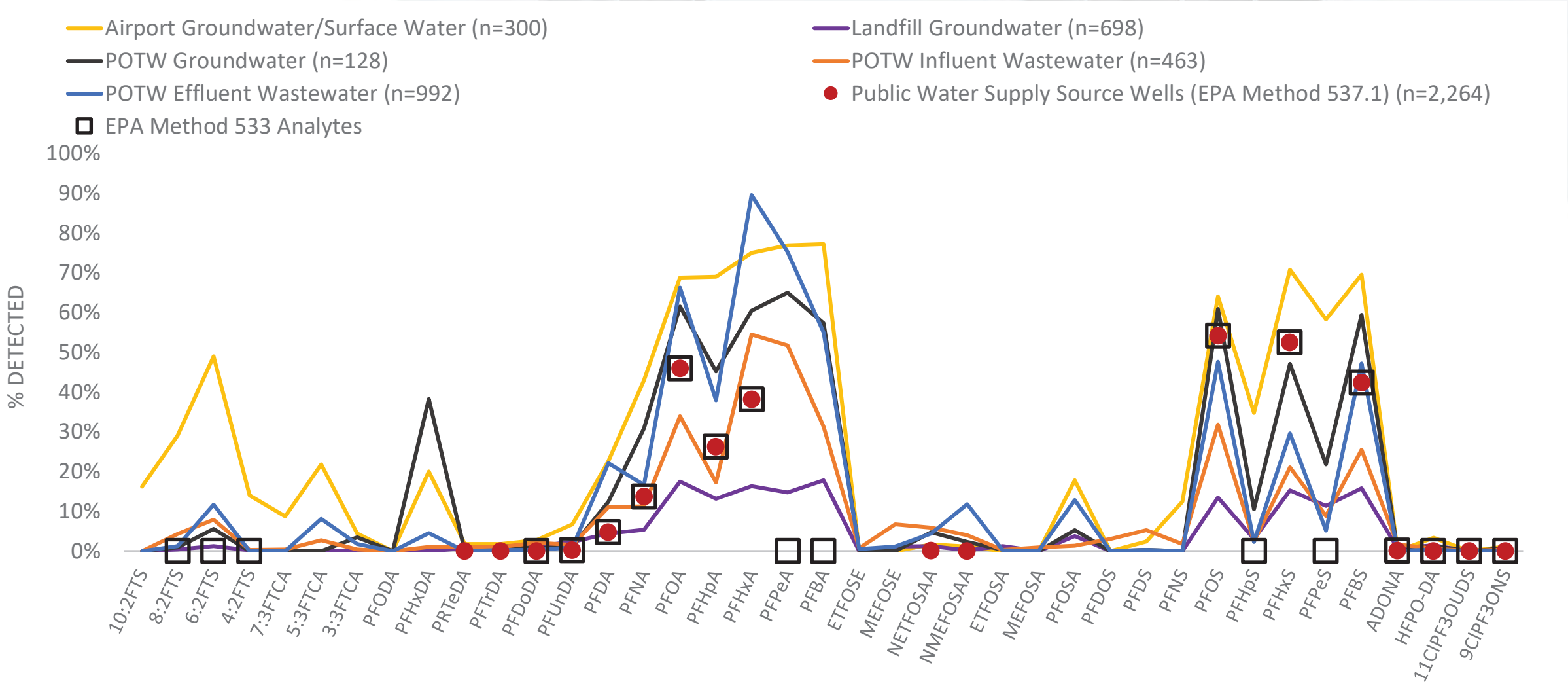

Data downloaded in February 2022 – Airports, Landfills, Chrome Platers, WWTPS, and GAMA - Priority Basin Project
Total PFAS sums based on DoD QSM (25 to 38 analytes)
Pollution Burden Percentiles from CalEnviroScreen V4.0

# Drinking Water Supply Wells - PFOA/PFOS Notification Level /Response Level Exceedances



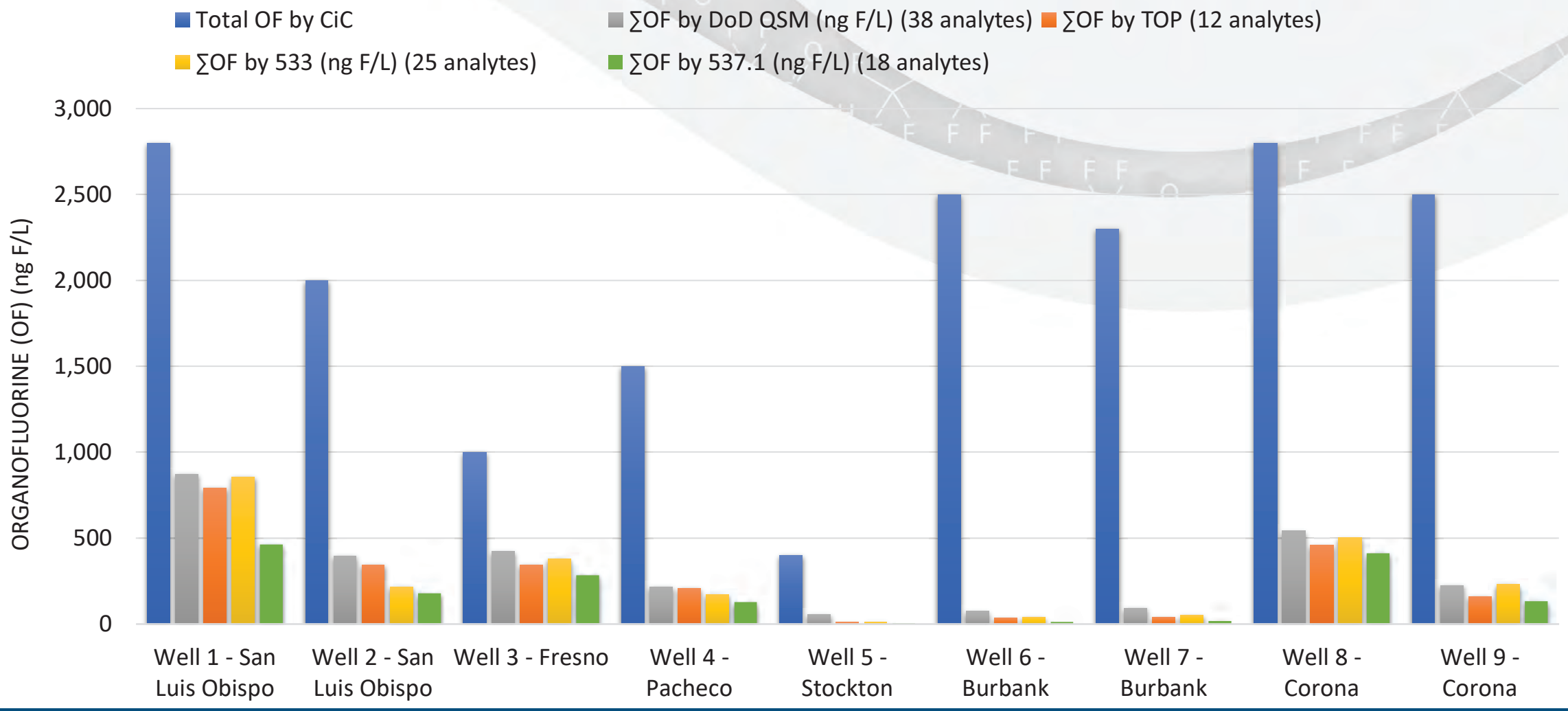

Data downloaded in February 2022 – raw water results
NL = Notification Level; QRAA = Quarterly Running Annual Average
RL = Response Level
PFOA and PFOS analyzed using EPA Method 537.1
PFOA: = NL = 5.1 ng/L, RL = 10 ng/L  PFOS: NL = 6.5 ng/L, RL = 40 ng/L

# Shift Drinking Water Method to Match Source Data

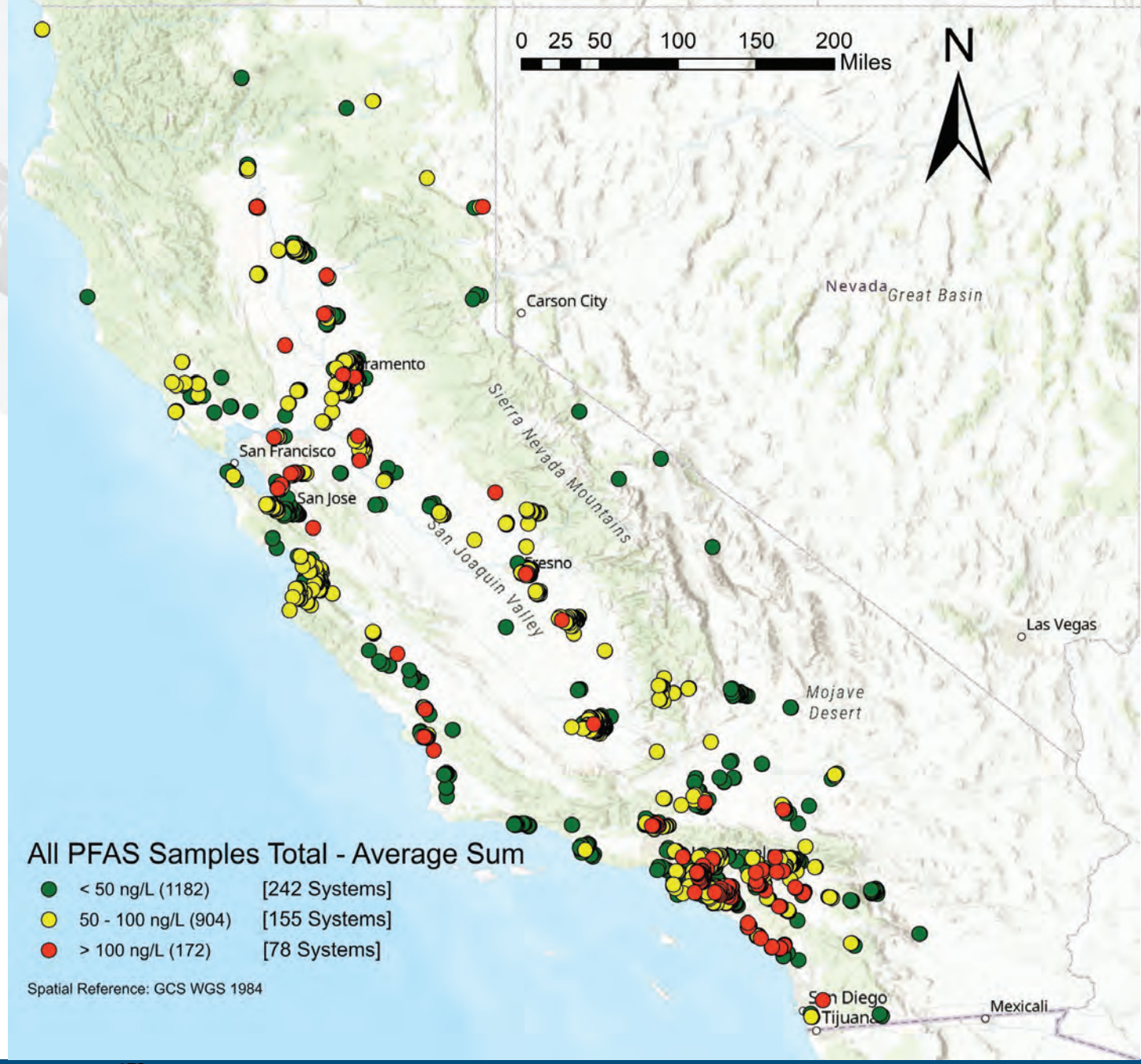



Data downloaded Jan to Feb 2022

# Estimates of Total Organofluorine in Drinking Water Reveals Interesting Results

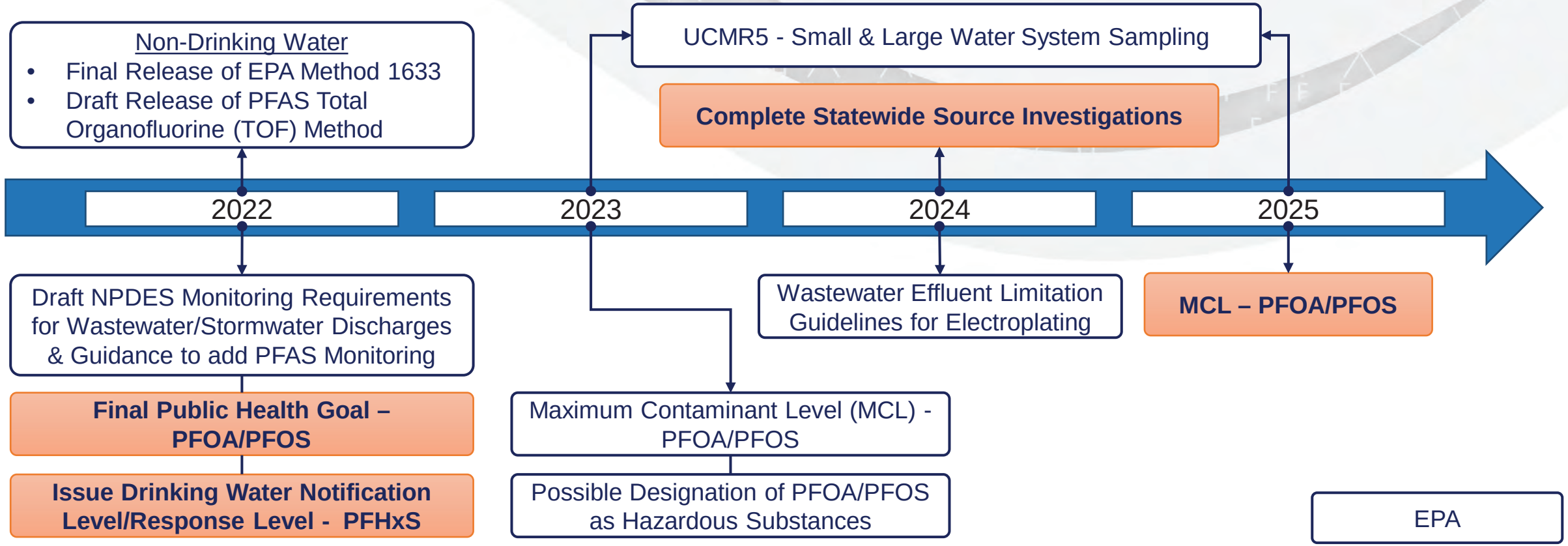


# Method 537.1 Cumulative PFAS provides a broader understanding of Occurrence in Drinking Water




Data downloaded in February 2022
Total PFAS sums based on EPA Method 537.1 (18 analytes) – Averages based on the PFAS sums for the last 4 quarters

# Upcoming State and EPA actions…



# More to come…

| | Industry Investigations | Drinking Water |
|---|---|---|
| **Assessment** | Assess PFAS at **surface water intakes** along several major rivers in CA | |
| | Expand **PFAS assessment monitoring** in Stream Pollution Trends Monitoring Program (SPoT) and Surface Water Ambient Monitoring Program (SWAMP) | |
| | Determine **unknown PFAS chemicals** using non-target analysis | |
| **Monitoring** | Incorporate PFAS **monitoring requirements** into permits | Re-Issue Orders to Public Water Systems for **EPA Method 533** |
| | Incorporate EPA's PFAS **monitoring requirements** into NPDES permits | Issue New **Notification Levels and Response Levels**, as necessary |
| **Treatment** | Ensure **pretreatment program compliance** w/EPA's PFAS Effluent Limitations Guidelines and/or other PFAS discharge requirements | Continue issuing **new water treatment permits** to public water systems for PFAS removal |

# Funding Background

- Senate Bill 170 appropriated $30M from General Fund to the State Water Board for technical and financial assistance to drinking water systems to address PFAS.
  - Must be committed to projects by June 30, 2024
  - Must be disbursed by June 30, 2026

- Additional $50M proposed for Fiscal Year (FY) 2022/2023
- Additional $20M proposed for FY 2023/2024.

# Funding Background

- Existing Division of Financial Assistance funding processes will be used to administer this PFAS funding.

- Relevant existing programs/processes:
  - Drinking Water State Revolving Fund (DWSRF) Intended Use Plan (IUP)
  - Safe and Affordable Drinking Water (SADW) Fund Expenditure Plan (FEP)

# Proposed Small Disadvantaged Community PFAS Support

- Minimum $20M for projects benefitting small disadvantaged communities (DACs), funded consistent with the SADW Fund FEP
- Proposed project types:
  - Testing water systems for PFAS, likely via a Technical Assistance Provider
  - Regional-scale pilot tests and demonstration projects
    - Template designs for other small systems to utilize
  - Planning for regional consolidation efforts

# Proposed Support for Other Communities

- Implementation funding for ready to proceed projects.
- Apply through the Drinking Water State Revolving Fund (DWSRF) Program.
- Small non-DACs and medium DACs eligible for 100% of eligible project costs.
- For other communities (medium non-DACs, all larger communities) funding limited to 50% of project costs.
- As condition of PFAS funding, water systems to incorporate data collection and analysis to inform statewide PFAS data.

# Other Pilot/Demonstration Projects

- State Water Board can potentially approve funding to specific projects that don't follow FEP or IUP processes, as part of a directed Board action
- Such projects must assist water system(s) to address PFAS

# State Funding for PFAS ($100 M)

## Next Steps:

- **April 13, 2022**: Deadline for (Informal) Public Feedback/Comments on information presented on March 30, 2022 Staff Workshop
  - Submit to: DFA-PFAS-Funding@waterboards.ca.gov
- **June 21, 2022**: Board Consideration of Proposals

## Stay Informed:

- Subscribe for e-updates: www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.html
  - Click on “Financial Assistance”
    - ✓ Select “Per-and Polyfluoroalkyl Substances (PFAS) Funding”
- Check for updates on the PFAS Funding website: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/pfas.html

# Related Federal Funding

- Additional new federal funding through the DWSRF and Clean Water State Revolving Fund (CWSRF) for contaminants of emerging concern, including PFAS.
  - Anticipated over next five years:
    - $360M for drinking water
    - $70M for wastewater
- Priorities and requirements of funding to be addressed in FY 2022/23 DWSRF and CWSRF IUPs
  - Planned for Board consideration July 2022

# California Coordinating Agencies

# Thank You!

| STATE WATER BOARD PFAS TEAM | |
|---|---|
| **Erica Kalve** | Pretreatment and CECs Unit (DWQ) |
| **Tammy Lee** | Pretreatment and CECs Unit (DWQ) |
| **Will Martin** | UST/Site Cleanup/DoD Unit (DWQ) |
| **Steve McMasters** | UST/Site Cleanup/DoD Unit (DWQ) |
| **Josh Munn** | Materials Management Unit (DWQ) |
| **Richard Nelson** | GAMA Unit (DWQ) |
| **Laleh Rastegarzadeh** | Materials Management Unit (DWQ) |
| **Trinh Pham** | UST/Site Cleanup/DoD Unit (DWQ) |
| **Brianna St. Pierre** | Materials Management Unit (DWQ) |
| **Jeff O'Keefe** | Field Operations Manager – Glendale (DDW) |
| **MarielaPaz Carpio-Obeso** | Quality Assurance Section (DDW) |

**DIVISION OF DRINKING WATER DISTRICT ENGINEERS**

**REGIONAL WATER BOARD CASE MANAGEMENT STAFF**

**ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM STAFF**

**OFFICE OF INFORMATION MANAGEMENT AND ANALYSIS STAFF**

**DIVISION OF FINANCIAL ASSISTANCE STAFF**

# More information available at…

**Water Board's PFAS Website:** www.waterboards.ca.gov/pfas/

**Division of Drinking Water PFOA/PFOS website**: www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/PFOA_PFOS.html

**Division of Financial Assistance PFAS Funding website**: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/pfas.html

**Email:** PFAS@waterboards.ca.gov

**Subscribe to Receive Notifications:** https://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.htm

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Facebook
California State Water Resources Control Board

YouTube
State Water Resources Control Board

# *What can the GeoTracker PFAS Data Tell Us?*

Dr. Roshan Aflaki, CDM Smith
Jared Voskuhl, CASA

April 5, 2022



CDM Smith 75th

CASA California Association of Sanitation Agencies

# Experimental Methods & Provisional Data Quality

- 40 CRF 136 / USEPA
- Data collected using experimental, non-approved methods
- Frequency of Non-detects

*USEPA guidance indicates that monitoring should not be commenced or required until after a multi-lab validated method is made available to the public. In addition, USEPA's criteria for certifying a new standard method requires a thorough demonstration of accuracy, precision, representativeness, ruggedness, and comparability. Because no USEPA certified or approved standard analytical test method currently exists for PFAS in non-potable water [and/or solid matrices], the data submitted herein should be considered as provisional.*

*The data is not intended for any regulatory purpose other than in response to the State Water Board's Order and should not be used for any other compliance or regulatory purpose under any statutory or regulatory scheme, including, but not limited to the federal Clean Water Act, the Safe Drinking Water Act, and/or the Porter- Cologne Water Quality Control Act.*

# PFAS is Ubiquitous When Measuring Presence

*PFAS exposure is a health concern*

Detectable serum PFASs

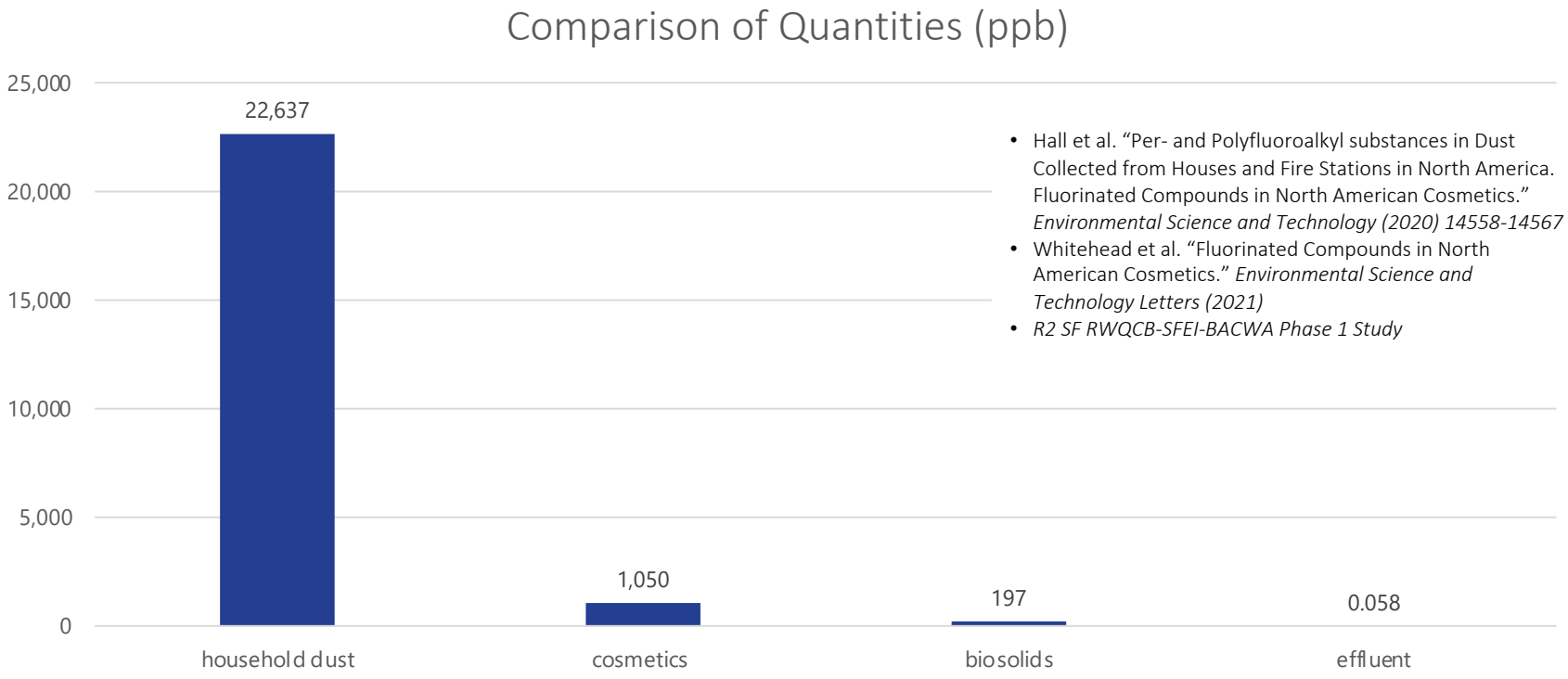
Non-detect

193

# Products Containing PFAS

- Baby products
- Sunscreens
- Water resistant clothing & apparel
- Household consumer products
- Paper products
- Home appliances
- Automotive products
- Medical technology
- Rechargeable batteries
- Car & floor waxes
- Plastic water bottles
- Toys
- Smart phones and tablets
- Cleaning products
- Fast-food wrappers, containers, & other grease-resistant paper
- Microwave popcorn bags
- Pizza boxes
- Candy wrappers
- Nonstick cookware
- Stain-resistant coatings for carpets or upholstery
- Wrinkle & stain resistant clothing
- Surfboard & snowboard wax

# Median PFAS Concentrations Across Media




- Hall et al. "Per- and Polyfluoroalkyl substances in Dust Collected from Houses and Fire Stations in North America. Fluorinated Compounds in North American Cosmetics." *Environmental Science and Technology (2020) 14558-14567*
- Whitehead et al. "Fluorinated Compounds in North American Cosmetics." *Environmental Science and Technology Letters (2021)*
- *R2 SF RWQCB-SFEI-BACWA Phase 1 Study*

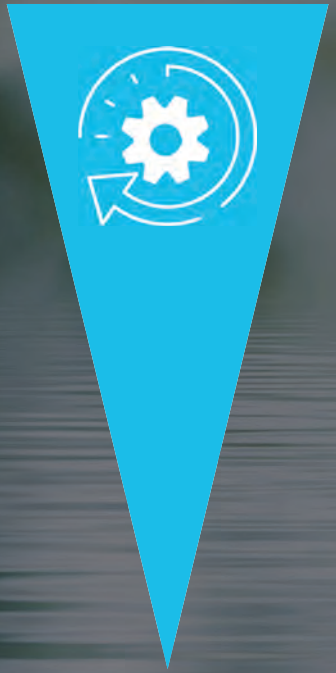
# Source Identification & Source Control

Pollution Prevention

Remediation

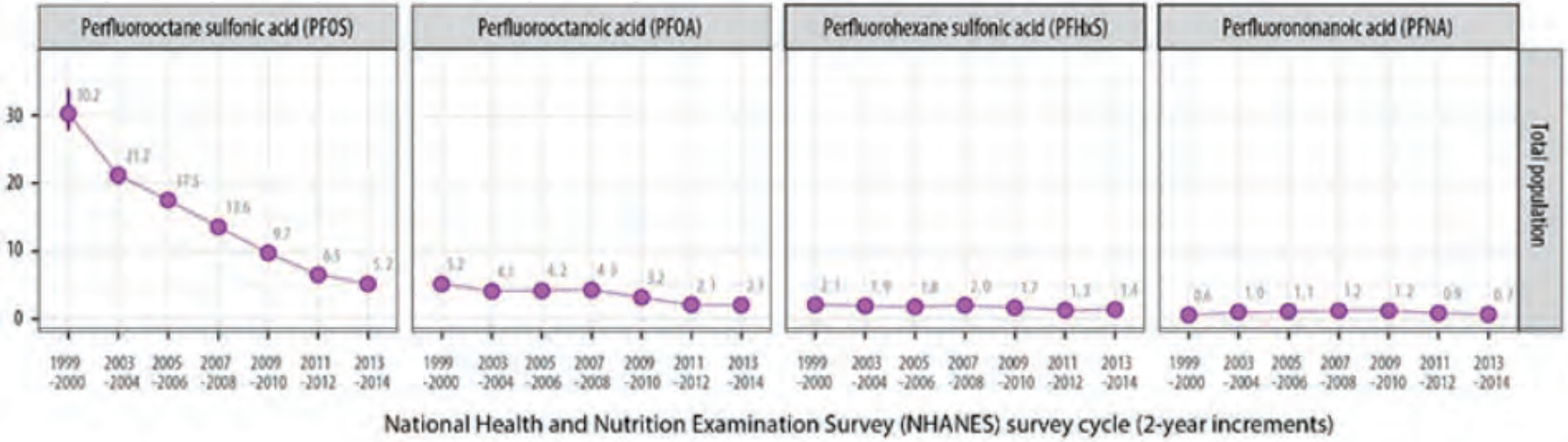
Societal Cost

Efficacy



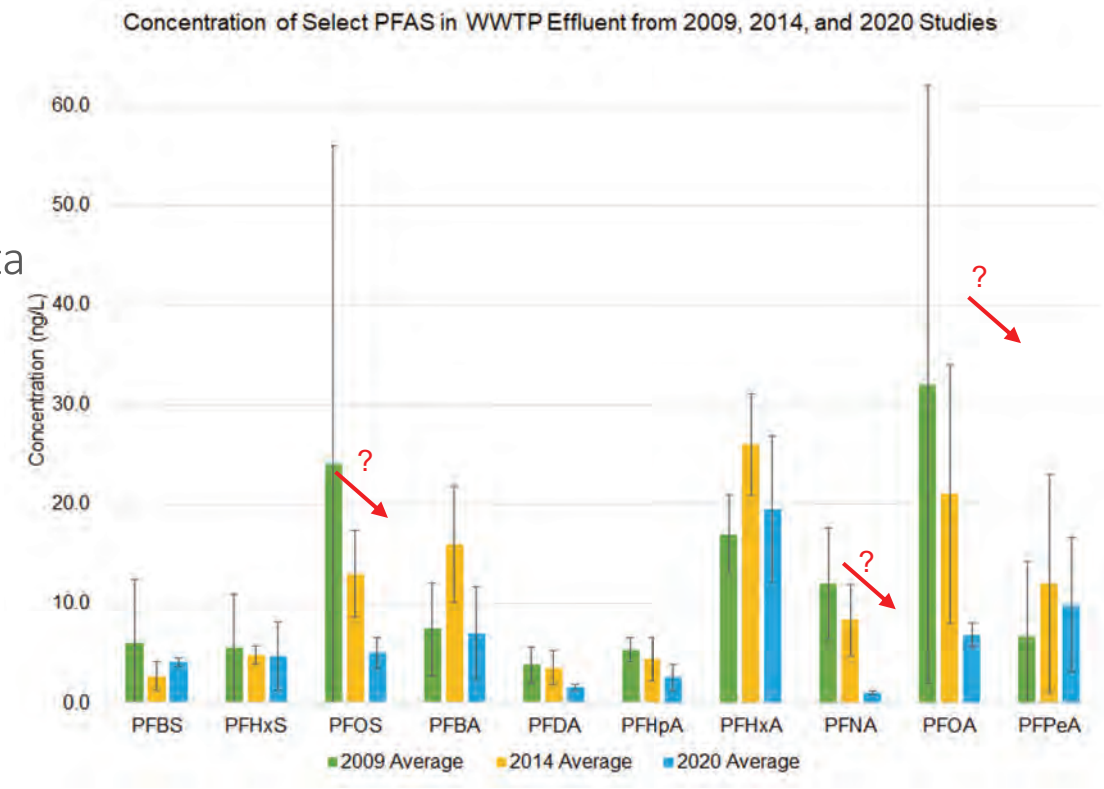
# Biomonitoring Data Shows Significant Decreases in Blood Serum after PFOS and PFOA were phased out

80% decrease for PFOS, 55% decrease in PFOA



# Long Chain Compounds Decreased in Bay Area Effluent over 12 years

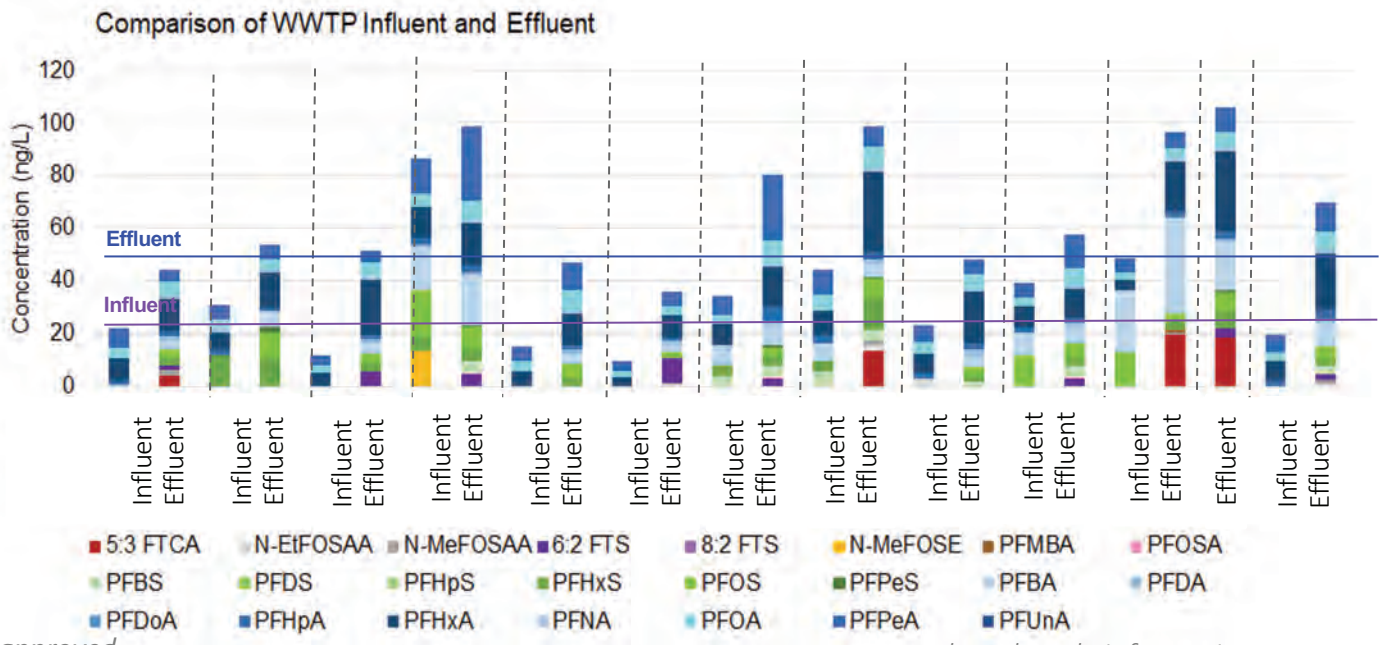
- 3 facilities with historic effluent data
- Decrease in PFOS, PFOA, and PFNA




*Graph and study information courtesy of Diana Lin and SFEI*

# R2 SF RWQCB-SFEI-BACWA Median Concentrations

- 27 ppt median in influent
- 58 ppt median in effluent
- 197 ppb median in biosolids
- Precursor transformation attributed to △ during treatment process

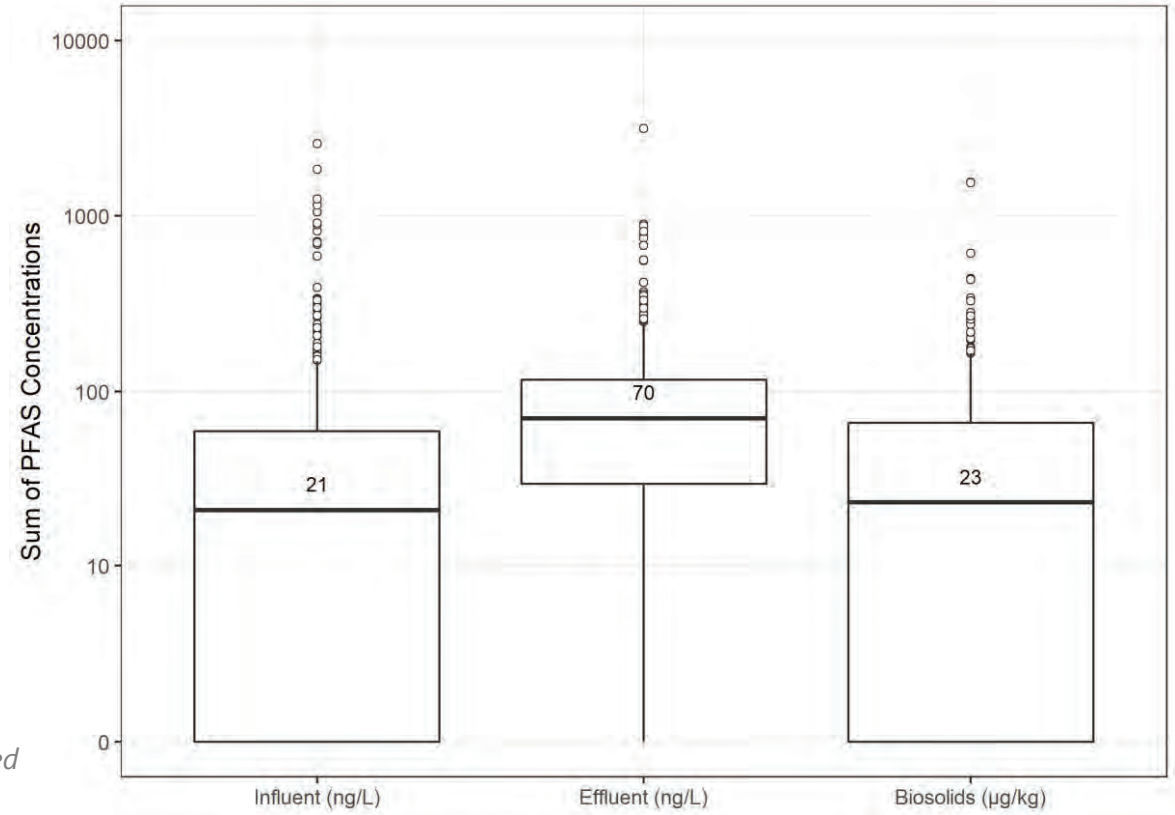



*Data was collected using non-US EPA approved methods and is Provisional.*

*Graph and study information courtesy of Diana Lin and SFEI*

# SWRCB Investigative Order POTW Median Concentrations

- 21 ppt median in influent
- 70 ppt median in effluent
- 23 ppb median in biosolids
- Precursor transformation attributed to Δ during treatment process




*Data was collected using non-US EPA approved methods and is Provisional.*

# CASA-CWA-EWG Sponsored PFAS Disclosure Legislation

AB 888 (Bloom, 2015) Microbeads ban in personal care products
SB 1263 (Portantino, 2018) Statewide microplastics strategy for coast
AB 818 (Bloom, 2021) Nonflushable Wet Wipes Package Labeling

**2022 – AB 2247 (Bloom) PFAS Product Disclosure**

Manufacturers of products containing PFAS would be required to register on the Interstate Chemical Clearinghouse (IC2) and certify with CalEPA the information.

Information would include the identity and quantity of PFAS in single-products which is intentionally added or in an amount above a certain threshold.

When analytes are detected by POTWs through regulatory monitoring, the IC2 can be referenced to identify prospective residential or commercial products as sources

# Thank You!

Roshan Aflaki (CDM Smith)
Ralph Eberts (CDM Smith)
Tom Falk (CDM Smith)

Ryan Batjiaka (SFPUC)
Amber Baylor (SOCWA)
Paul Bedore (Robertson-Bryan Inc.)
Tom Bruton (Green Science Policy Institute)
Alyssa Downs (CASA)
Lorien Fono (BACWA)
Steve Jepsen (SCAP)
Greg Kester (CASA)
Diana Lin (SFEI)
Adam Link (CASA)

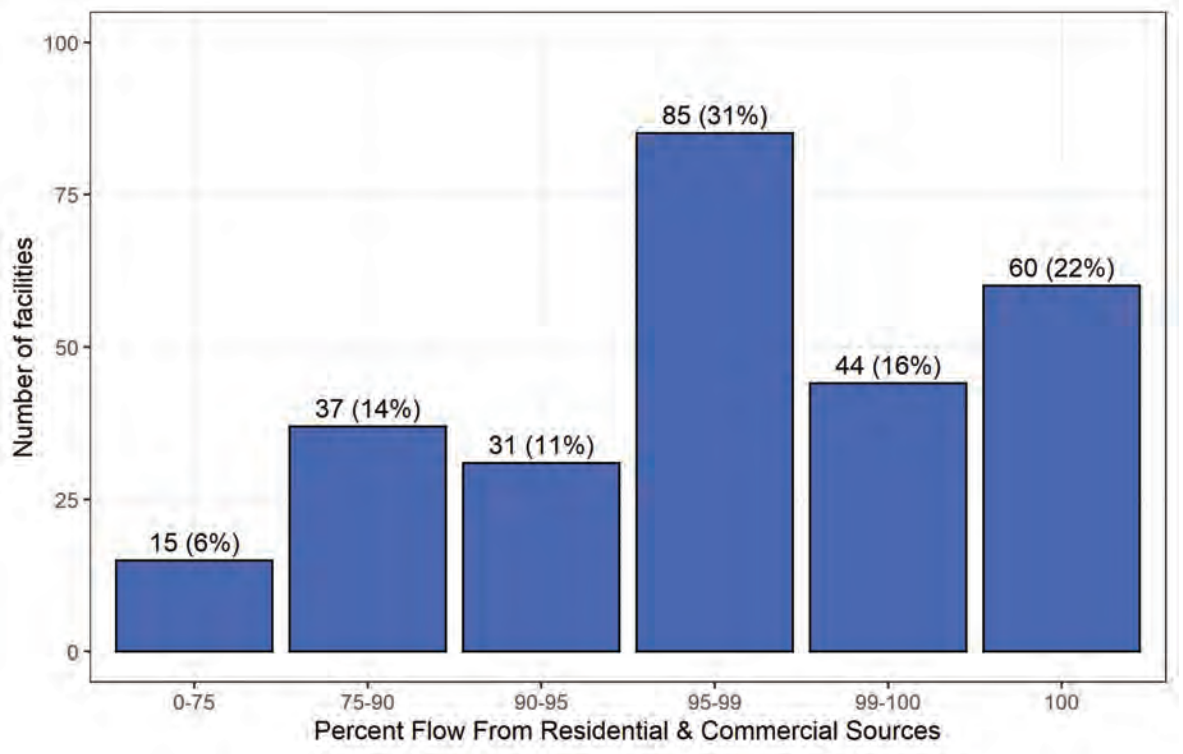
Chris Gurr (CDM Smith)
Erica Kalve (SWRCB)
Annalisa Kihara (SWRCB)
Wendy Linck (SWRCB)

Steve Luis (Ramboll)
Miguel Medina (SFEI)
Mitch Mysliwiec (Larry Walker Associates)
Janet Samala (City of Los Angeles)
Lori Schectel (Central San)
Matt Smith (OC SAN)
Patrick Veasy (Downey Brand)
Josh Westfall (LACSD)
Debbie Webster (CVCWA)
Jackie Zipkin (EBDA)

# Research Questions

1. What is a PFAS “baseline” for POTWs?
2. Do industrial discharges create PFAS above baseline?
3. Are there PFAS signatures of industrial point sources?
4. Where are the “outliers”?
5. What are the blind spots or major uncertainties in the dataset?

# POTWs Distribution by Residential & Commercial Contribution




Total of 272 facilities

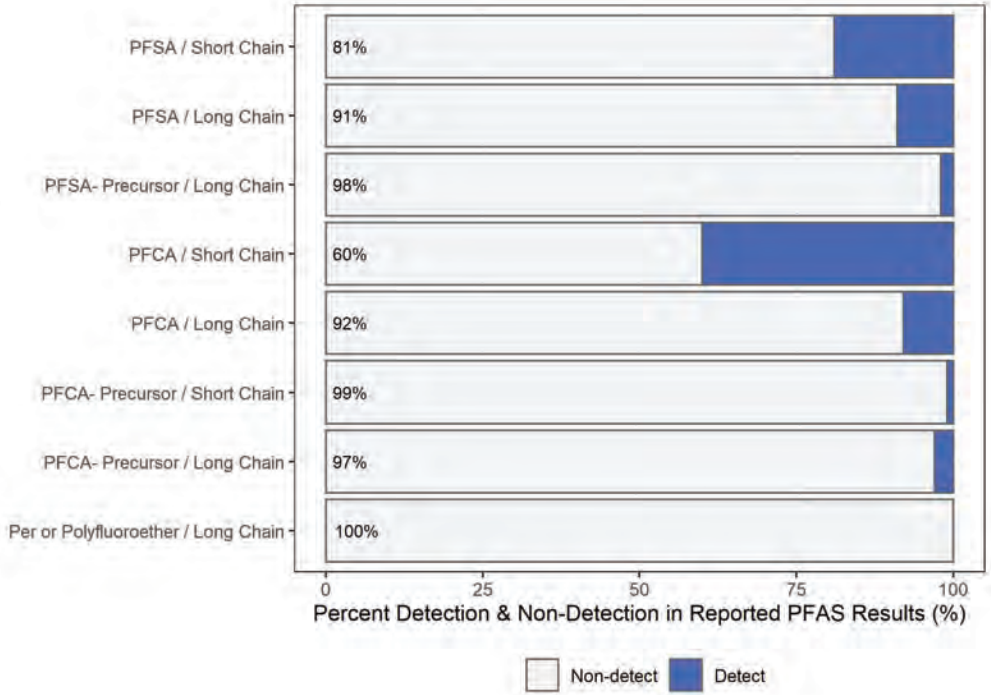
80% of facilities have < 10% industrial contribution

70% of facilities have < 5% industrial contribution

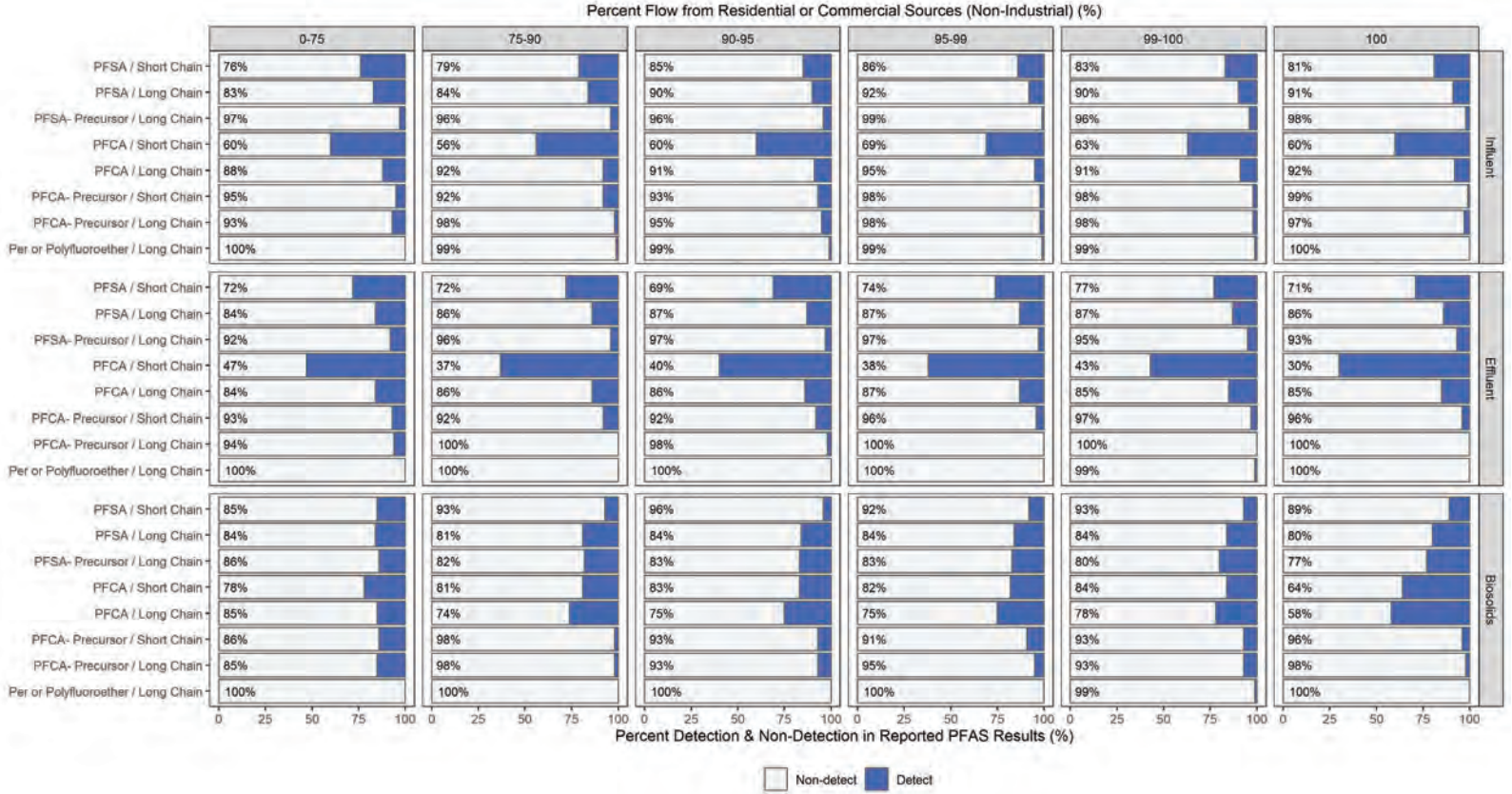
# PFAS Profile – POTWs with No Industrial Contribution

State-wide influent samples

*POTWs with 100% residential & commercial flow*



# Wastestream PFAS Profile by Residential & Commercial Contribution



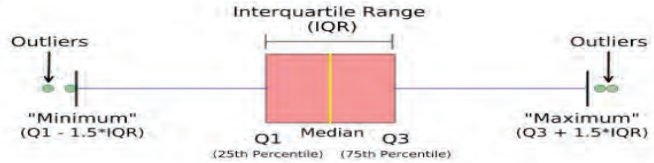
# Outliers and Median Sensitivity to NDs Quantification

**Examples: 3 approaches to handling NDs when calculating ∑quantified PFAS**

**"As-reported"** = use values as shown in GeoTracker.
*Depending on the laboratory performing the analysis, some NDs were reported as 0, some as the Detection Limit.*

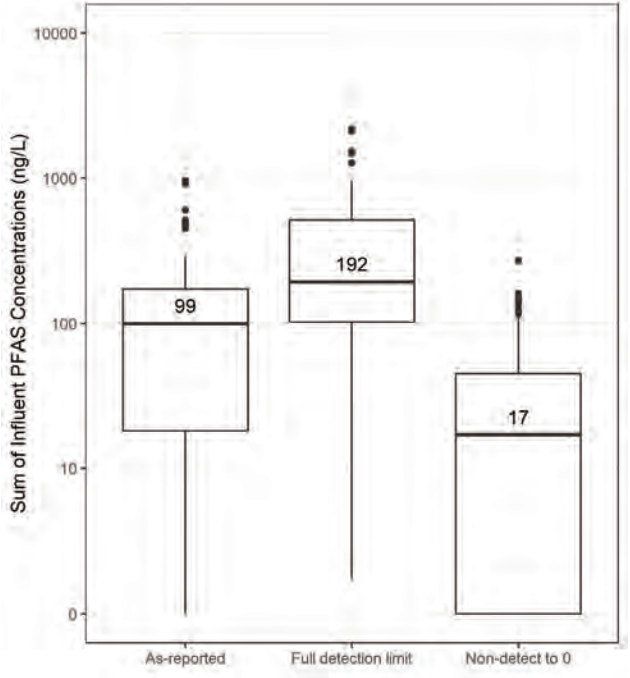
**"Full detection limit"** = values for NDs are substituted with the Detection Limit reported by the laboratory.

**"Non-detect to 0"** = All NDs treated as 0 nanograms per Liter (liquids) or micrograms per kilogram (solids)




State-wide samples

*POTWs with 100% residential & commercial flow*



# Analyte Median Sensitivity to NDs Quantification

Influent samples

*All POTWs*

| Analyte | Group | Percent of samples with Reporting Limits less than the Order requirements (%) | Median Concentration (ppt) | | |
|---|---|---|---|---|---|
| | | | As-reported | Full detection limit | Non-detects to 0 |
| PFOA | PFCA / Long Chain | 41 | 3.23 | 7.7 | 0 |
| PFOS | PFSA / Long Chain | 42 | 2.64 | 5 | 0 |
| PFHxS | PFSA / Short Chain | 42 | 1.9 | 5 | 0 |
| PFBS | PFSA / Short Chain | 42 | 2.03 | 5 | 0 |
| PFHxA | PFCA / Short Chain | 50 | 6.64 | 8.6 | 3.88 |
| PFHpA | PFCA / Short Chain | 41 | 1.81 | 5 | 0 |
| PFNA | PFCA / Long Chain | 41 | 0.9 | 4.66 | 0 |
| PFDA | PFCA / Long Chain | 41 | 1 | 4.9 | 0 |
| ADONA | Per or Polyfluoroether / Long Chain | 43 | 0.35 | 5 | 0 |

# “Outlier” POTWs are Visible in the Data

State-wide influent samples

*POTWs with 100% residential & commercial flow*

- ∑quantified PFAS for each sample
- “Non-detect to 0” case

**PFAS Study Phase 1 Results**

Lorien Fono, Miguel Mendez, Diana Lin, Rebecca Sutton

September 1st, 2021

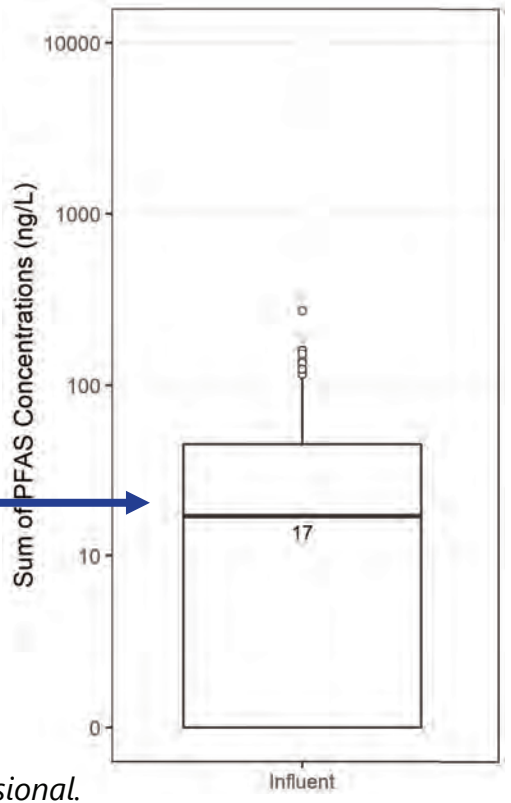
SFEI AQUATIC SCIENCE CENTER

BACWA BAY AREA CLEAN WATER AGENCIES

RMP

**BACWA Study Median 27 ng/L**

*Non-detects to 0 ng/L.* ∑quantified PFAS for each sample




*Data was collected using non-US EPA approved methods and is Provisional.*

# With so many NDs and impact of the NDs quantification approach on Outliers and Medians, it's recommended to use distribution of PFAS to:

- Identify **outliers**
- Identify POTWs that would benefit from **source identification** and **source control studies**

# Uncertainties and Blind Spots

- **NDs** need to be handled with care
- Wastewater is a **complex matrix**. Difficult to analyze chemically.
- Taxonomies do not yet exist for **precursor transformation** of compounds

# Future Activities

Research Questions

1. What is a PFAS “baseline” for POTWs?
2. Do industrial discharges create PFAS above baseline?
3. Are there PFAS signatures of industrial point sources?
4. Where are the “outliers”?
5. What are the blind spots or major uncertainties in the dataset?

We continue to work on:

- Outliers analysis
- Source identification studies
- Signatures of industrial contributions
- Signatures of residential contributions
- Await R2 SF RWQCB’s Phase 2 results

# Thank you

**Dr. Roshan Aflaki** aflakir@cdmsmith.com
**Jared Voskuhl** jvoskuhl@casaweb.org



CDM Smith 75th

CASA California Association of Sanitation Agencies

**BAY AREA CLEAN WATER AGENCIES**
**ANNUAL MEETING ROGRAM**
**May 6 2022**
**David Brower Center**
**Berkeley, CA**

**PRELIMINARY**

| TIME | DESCRIPTION | SPEAKER |
|---|---|---|
| **8:30am - 9:00am** | **Coffee in the lobby** | |
| **9:00 am - 9:15 am** | **Welcome/Introduction** | Amit Mutsuddy, BACWA Chair/ City of San José |
| | **Year in Review** | Lorien Fono, BACWA |
| **9:15 am - 10:30 am** | **Regulator Priorities** | **Moderator: Lori Schectel, Central San** |
| | Bay Area Air Quality Management District | Greg Nudd |
| | EPA | Ellen Blake |
| | San Francisco Bay Regional Water Board staff | Tom Mumley |
| | State Water Resources Control Board member | Nichole Morgan |
| | Q&A | |
| **10:30 am - 11:00 am** | **Break - Coffee and snacks on the terrace** | |
| **11:00 am - 12:30 pm** | **BACWA Hot Topics** | **Moderator: Eileen White, BACWA Vice-Chair/EBMUD** |
| | PFAS Study - Phase 1 results and Phase 2 goals | Diana Lin, SFEI |
| | Issues in AIR Regulatory Compliance | Courtney Mizutani, Mizutani Environmental |
| | Biosolids - a changing landscape | Sarah Deslauriers, Carollo |
| | Resiliency Planning - Sea Level Rise guidance, Sanitary Sewer System WDRs, and more | Mary Cousins, BACWA |
| | Q&A | |
| **12:30 pm - 1:30 pm** | **Lunch - On the terrace** | |
| **1:30 pm - 1:45 pm** | **BACWA Leadership Recognition and Arleen Navarret Award** | **Amit Mutsuddy, BACWA Chair/City of San José** |
| **1:45 pm - 2:00 pm** | **Nutrients - Overview** | |
| | Overview of 2nd Watershed Permit/Governance Update | Lorien Fono, BACWA |
| **2:00 pm - 2:35 pm** | **Nutrients - Regulatory Update** | **Moderator: Amy Chastain, SFPUC** |
| | 2021 Group Annual Report | Mike Falk, HDR |
| | Nature-Based Solutions Study | Ian Wren, SFEI |
| | Regional Recycled Water Evaluation | Mike Falk, HDR |
| | Q & A | |
| **2:35 pm - 3:05 pm** | **Nutrients - Technical Update** | **Moderator: Jackie Zipkin, EBDA** |
| | Update on the Science Plan and Findings | Dave Senn, SFEI |
| **3:05 pm - 3:15 pm** | **Annual Meeting Wrap-Up** | **Amit Mutsuddy, BACWA Chair/City of San José** |
| **3:15pm** | **Adjourn** | |

# BACC 2021-2022 Price Comparison

| | ALUMINUM SULFATE 44%-49% Liquid Solution | | | | SULFATE 2% Acidized Liquid Solutions | ALUMINUM SULFATE 5% Acidized Liquid Solutions (Optional bid item) | | ALUMINUM SULFATE 7% Acidized Liquid Solution (Optional bid item) |
|---|---|---|---|---|---|---|---|---|
| | North Bay | Sacramento | South Bay | Tri Valley | South Bay | South Bay | North Bay | North Bay |
| | gal | gal | gal | gal | gal | gal | gal | gal |
| 2022 | $0.8668 | $0.8668 | $0.8668 | $0.8668 | $1.1393 | $1.1250 | $1.0535 | $1.2192 |
| 2021 | $0.7380 | $0.6750 | $0.8270 | $0.7380 | n/a | n/a | $1.0686 | $1.1610 |
| % increase | 17% | 28% | 5% | 17% | | | -1% | 5% |

| | AMMONIUM SULFATE 40% Liquid Solution | | | AMMONIUM SULFATE 25% Dry Material |
|---|---|---|---|---|
| | East Bay | North Bay | South Bay | Tri Valley |
| | gal | gal | gal | lb |
| 2022 | $1.6900 | $1.6900 | $1.6900 | $0.5050 |
| 2021 | $1.3500 | $1.3500 | $1.3500 | $0.3950 |
| % increase | 25% | 25% | 25% | 28% |

| | AQUEOUS AMMONIA 19% Solution | | | | |
|---|---|---|---|---|---|
| | Central Valley | East Bay | Sacramento | South Bay | Tri Valley |
| | gal | gal | gal | gal | gal |
| 2022 | $1.9700 | $1.8000 | $1.4600 | $1.3240 | $4.5700 |
| 2021 | $1.1100 | $1.0300 | $4.7000 | $0.7900 | $3.9700 |
| % increase | 77% | 75% | -69% | 68% | 15% |

| | CITRIC ACID 48%-52% Liquid | | | CITRIC ACID dry material |
|---|---|---|---|---|
| | Central Valley | North Bay | Sacramento | Tri Valley |
| | gal | gal | gal | lb |
| 2022 | $21.60 | $22.10 | $21.30 | $4.75 |
| 2021 | $7.16 | $7.57 | $7.16 | $2.00 |
| % increase | 202% | 192% | 197% | 138% |

| | FERRIC CHLORIDE | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Central Valley | East Bay | Marin Sonoma Napa | North Bay | Peninsula | Sacramento | South Bay | Tri Valley |
| | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton |
| 2022 | 1169.00 | 1217.00 | 1229.00 | 1233.00 | 1217.00 | 1248.00 | 1203.00 | 1226.00 |
| 2021 | $773.00 | $731.00 | $731.00 | $764.00 | $764.00 | $746.00 | $727.05 | $731.00 |
| % increase | 51% | 66% | 68% | 61% | 59% | 67% | 65% | 68% |

**FERROUS CHLORIDE** - No bid in 2021 due to cancellation and no bid in 2020 due to covid

**HYDROFLUSILICIC ACID** - No bidders in 2021 and no bid in 2020 due to covid

| | LIQUID CHLORINE One-Ton Cylinders (2,000 lbs) | | | LIQUID CHLORINE 150-lb Cylinders (Optional bid item) |
|---|---|---|---|---|
| | Marin Sonoma Napa | North Bay | Sacramento | Sacramento |
| | ton | ton | ton | lb |
| 2022 | $1,783.00 | $1,648.00 | $1,783.00 | $1.93 |
| 2021 | $910.00 | $785.00 | $825.00 | $1.63 |
| % increase | 96% | 110% | 116% | 19% |

| | SODIUM BISULFITE 25% Solution | | | | | | | SODIUM BISULFITE 40% Solution | | | | SODIUM BISULFITE 20% (Optional) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Central Valley | East Bay | Marin Sonoma Napa | North Bay | Peninsula | Sacramento | South Bay | Central Valley | East Bay | Peninsula | Sacramento | East Bay |
| | gal | gal | gal | gal | gal | gal | gal | gal | gal | gal | gal | gal |
| 2022 | 1.4750 | 1.4750 | 1.4750 | 1.4750 | 1.4750 | 1.8600 | 1.4750 | 1.9950 | 1.9950 | 1.9950 | 1.9950 | 1.4750 |
| 2021 | $1.25 | $1.21 | $1.30 | $1.28 | $1.23 | $1.76 | $1.21 | $1.75 | no bid | $1.75 | $1.86 | no bid |
| % increase | 18% | 22% | 13% | 15% | 20% | 6% | 22% | 14% | | 14% | 7% | |

| | SODIUM HYDROXIDE 20% (Caustic) | SODIUM HYDROXIDE 25% (Caustic) | | | | | SODIUM HYDROXIDE 30% (Caustic) | | | SODIUM HYDROXIDE 50% (Caustic) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sacramento | Central Valley | Marin Sonoma Napa | Sacramento | South Bay | Tri Valley | North Bay | Sacramento | South Bay | Central Valley | East Bay | Marin Sonoma Napa | North Bay | Sacramento | South Bay | Tri Valley |
| | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton | dry ton |
| 2022 | $1,019.35 | $975.00 | $873.50 | $967.58 | $975.43 | $907.90 | $860.20 | $957.34 | $1,550.00 | $816.74 | $777.03 | $805.77 | $740.45 | $806.36 | $779.60 | $761.37 |
| 2021 | $614.7400 | $517.0400 | $515.1200 | $569.5800 | $599.9300 | $519.3300 | $476.2200 | $567.9300 | $461.8500 | $416.3500 | $447.2800 | $402.9900 | $436.4400 | $416.8300 | | |
| % increase | 66% | 89% | 70% | 70% | 63% | 75% | 81% | 69% | 236% | 96% | 74% | 100% | 70% | 93% | | |

| | SODIUM HYPOCHLORITE 12.5% | | | | | | | | SODIUM HYPOCHLORITE 12.5% In 275-gal totes (Optional bid item) | SODIUM HYPOCHLORITE 12.5% In Drums (Optional bid item) | | SODIUM HYPOCHLORITE 12.5% In Caryboys (Optional bid | SODIUM HYPOCHLORITE 5.25% (Optional bid item) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Central Valley | East Bay | Marin Sonoma Napa | North Bay | Peninsula | Sacramento | South Bay | Tri Valley | North Bay | Central Valley | North Bay | Sacramento | Sacramento |
| | gal | gal | gal | gal | gal | gal | gal | gal | gal | gal | gal | | gal |
| 2022 | 1.5469 | 1.4322 | 1.464 | 1.3852 | 1.4916 | 1.5166 | 1.4642 | 1.4424 | 2.01 | no bid | no bid | 2.15 | 0.929 |
| 2021 | $0.71240 | $0.70400 | $0.76910 | $0.73660 | $0.73900 | $0.75400 | $0.73770 | $0.70150 | no bid | no bid | no bid | na | 0.66 |
| % increase | 117% | 103% | 90% | 88% | 102% | 101% | 98% | 106% | | | | | 41% |

**BACWA Chair/Vice Chair History**

| Timeframe | Chair | Vice-Chair |
|---|---|---|
| 2000 – 2002 | Chuck Weir (EBDA) | Jim Kelly (CCCSD) |
| 2002 – 2004 | Jim Kelly (CCCSD) | Michael Carlin (SFPUC) |
| 2004 – Feb. 2005 | Michael Carlin (SFPUC) | Dave Williams (EBMUD) |
| March 2005 – June 2005 | Dave Williams (EBMUD) | Bill Keaney (SFPUC) |
| July 2005 – June 2006 | Bill Keaney (SFPUC) | Chuck Weir (EBDA) |
| July 2006 – May 2007 | Bill Keaney (SFPUC) | Dave Williams (EBMUD) |
| June 2007 – June 2008 | Dave Williams (EBMUD) | Dave Tucker (EBMUD) |
| July 2008 – March 2010 | Dave Tucker (SJ) | Doug Craig (CCCSD) |
| April 2010 – June 2010 | Dave Tucker (SJ) | Arleen Navarret (SFPUC) |
| July 2010 – October 2010 | Arleen Navarret (SFPUC) | Ben Horenstein (EBMUD) |
| Nov 2010 – Feb 2013 | Ben Horenstein (EBMUD) | Tommy Moala/Laura Pagano (SFPUC) |
| March 2013 – June 2015 | Mike Connor (EBDA) | Laura Pagano (SFPUC) |
| July 2015 – June 2017 | Laura Pagano (SFPUC) | Jim Ervin (SJ) |
| July 2017 – Feb 2018 | Jim Ervin (SJ) | Lori Schectel (CCCSD) |
| March 2018 – June 2020 | Lori Schectel (CCCSD) | Amit Mutsuddy (SJ) |
| July 2020 – present | Amit Mutsuddy (SJ) | Eileen White (EBMUD) |

**BAY AREA CLEAN WATER AGENCIES**
**SUCCESSION PLANNING**
**Fiscal Year 2022**

## A. BACWA Principal Representatives

| Agency | Representatives | Title & Roles | Succession Planning |
|---|---|---|---|
| **CCCSD** | Lori Schectel | CASA State Legislative Committee, Nutrient Governance Steering Committee Alternate, Summit Partners | |
| | Roger Bailey (Alternate) | | |
| | Jean-Marc Petit (Alternate) | | |
| **EBDA** | Jacqueline Zipkin | BACWA Executive Board Rep, ReNUWIt Industrial Advisory Committee Member | |
| | Jason Warner, Oro Loma (Alternate) | | |
| **EBMUD** | Eileen White | BACWA Executive Board Vice Chair, Nutrient Management Strategy Governance Steering Committee, Bay Area Regional Reliability Project, SF Estuary Partnership | |
| | Alicia Chakrabarti (Alternate) | | |
| | Yun Shang (Alternate) | | |
| **SFPUC** | Amy Chastain | BACWA Executive Board Rep, | |
| | Greg Norby (Alternate) | | |
| | Jennie Pang (Alternate) | | |
| **San Jose** | Amit Mutsuddy | BACWA Executive Board Chair, Joint SFEI/ASC Board | |
| | Eric Dunlavey (Alternate) | RMP Steering Comm; Nutrient Management Strategy Comm; | |

**Changes to Principal Representation require submission of a Designation Letter and a Statement of Economic Interest Form within 30 days**

Recycled Water Committee –
Report to BACWA Board

Recycled Water Committee Meeting on: 1/18/2022
Executive Board Meeting Date: 2/18/2022
Committee Chairs: Stefanie Olson, Reena Thomas

**Committee Request for Board Action:** None

**Detailed notes from meetings are posted online.**
**27 attendees (all participating remotely) representing 12 member agencies**

**Regional Recycled Water Evaluation Update**

HDR/Woodard & Curran has prepared 1/3 drafts of individual plant reports, and more are in progress. Each agency will ultimately be required to sign off on their report.

**USEPA National Water Reuse Action Plan** (WRAP) **– Summary and Full Report**

Eric Rosenblum gave a summary of the report developed for WRAP Action 2.16. Some key takeaways were:

- Economic benefits of a recycled water project need to be commensurate with costs for all participants
- Alignment between different agencies' interests is the major barrier to implementation.
- Leadership at all levels is key to project success.
- Hampton Roads and Southern Arizona provided important case studies on how water/wastewater agencies can move their interests into alignment.

The presentation was followed by participants discussing their own agencies efforts to overcome interjurisdictional challenges to implement recycled water projects.

**Site Supervisor Training Update**

The committee is moving forward with plans to conduct a site supervisor training video series in calendar year 2022. The BACWA Executive Board agreed to allocate funding in the FY23 budget to hire a video editor. The Board will give final approval once a scope of work and budget are developed. The initial concept is to develop 4 videos, each about 10 minutes long. Anyone interested in helping with video production should contact Stefanie Olson.

**Federal Funding Updates** (Sachi Itagaki, Kennedy Jenks)

- Reclamation / WaterSmart: The Bipartisan Infrastructure Law contains $1 billion over five years for water reclamation and reuse projects, including $550 million for the Title XVI Program and $250 million for desalination projects. For WIIN Act Title XVI projects and WIIN Act Desalination Construction projects, Reclamation has increased the total amount of funding for any one project to $30 million.
- WIFIA Loans - EPA can provide up to 49% of project costs to fund large projects > 20m- 2 step process – Agencies submit a letter of interest; then may receive invitation for application. There is a $100k+ processing fee for technical/financial/environmental review.
- EPA's SRF 5-year plan includes an allocation of $1B to the Clean Water SRF for emerging contaminants.

**State Funding Updates**

In December, DWR released a final solicitation package for Round 2 of IRWMP Prop 1 funding, which states that approximately $182 million will be made available for implementation grant awards in Round 2. The BAIRWMP Process and Planning Committee plans to submit an application for the solicitation and has met to discuss how projects will be selected for the application.

- Prop 1 IRWM Funding - final Round 2 PSP in April 2022
- In SF Bay $6.5m DAC; $22.75m for general IRWM
- An agency's project needs to be in IRWM plan and engaged with IRWM group

**Legislative Updates** (Reena Thomas, EBMUD)

WateReuse is recommending support of AB 2787 (microplastics regulation), SB 1197 (technologies to advance drought resiliency), AB2247 (PFAS registry), SB230 (CECs in drinking water), and SB 911 (allowing progressive design-bid-build for larger public works projects). WateReuse is considering opposition to AB 2811 (onsite reuse/dual plumbing) and SB 1157 (indoor water use standard). WateReuse has a watch position on SB 1144 (water efficiency and graywater in state buildings) and SB 12 (heat standards for water infrastructure in fire hazard areas)

**Next Meeting** – Tuesday, May 17, 10:30 am by Zoom

# Executive Director's Report to the Board

## March 2022

**EXECUTIVE BOARD MEETING AND SUPPORT**

- Worked with BACWA staff to plan and manage 3/18 Executive Board meeting
- Conducted the Executive Board meeting agenda review with the BACWA Chair
- Updated preliminary program for 2022 Annual Meeting
- Reviewed catering details for Annual Meeting Program
- Posted and convened Special Board meeting to plan BAAQMD Reg 2 workshop, 3/25
- Continued to track all action items to completion

**COMMITTEES:**

- Discussed committee budgets for FY23
- Planned and hosted Managers Roundtable meeting, 3/10
- Attended and drafted notes for Recycled Water Committee, 3/15
- Attended BAPPG, 3/16
- Discussed enhanced support for statewide issues by AIR consultant and developed BAR for enhanced support through the committee budget
- Discussed future of O&M Infoshare with group members

**REGULATORY:**

- Met with R2 to discuss common interests in SSS WDR revision, 3/1
- Attended CASA Biosolids 101 workshop, 3/7
- Communicated with staff of the California Water Quality Monitoring Council meeting
- Worked with SFEI to finalize PFAS SAP
- Contacted BAAQMD to review draft agenda for Reg 2 workgroup kickoff
- Worked with R2 staff to prepare for BAAQMD Reg 2 Working group meeting, 3/25
- Prepared for and led BAAQMD Reg 2 working group kickoff meeting, 3/25
- Worked with AXYS to develop contract and approval for PFAS analysis

**NUTRIENTS**:

Completed a variety of tasks and activities associated with BACWA's interests on nutrients and collaborating with the Water Board including:

- Discussed NMS issues with Science Manager
- Participated in and drafted meeting notes for NMS Planning Subcommittee meeting, 3/3
- Attend NBS/NMS fundraising joint subcommittee meeting, 3/2, 3/9, 3/16, 3/23
- Met with data steering committee to revise TIN baseline, 3/4
- Ran different UTL data scenario calculations
- Discussed statistical approaches with consultant
- Attended Nutrient Technical Workgroup meeting 3/11
- Met with NTT to discuss NMS priorities, 3/14
- Met with NTT and Science team to discuss NMS Priorities, 3/17
- Discussed future of NMS with R2 EO, 3/18

- Attended Assessment Framework subcommittee meeting, 3/18
- Updated State of the Science document

**FINANCE:**
- Reviewed the monthly BACWA financial reports per EBMUD's new accounting system
- Worked with AED to update FY23 Budget based on Board recommendations
- Reviewed and approved invoices
- Worked with AED to reformat Budget to Actual spreadsheet

**COLLABORATIONS:**
- Attended SFEP Implementation Committee meeting, 3/16
- Met with CASA workgroup on PFAS data, 3/4, 3/28
- Attended CASA CS Workgroup meeting 3/16
- Attended CASA RWG Biosolids and Water meeting 3/17
- Discussed ACE support with CASA ED
- Attended CASA ACE meeting, 3/24
- Attended OCWD PFAS Impacts and Policy Solutions meeting 3/24
- Collaborated with CASA on planning the POTW perspective for the California Water Quality Monitoring Council
- Participated in planning meeting for BAOWN conservation workshop, 3/4, 3/18
- Prepared for and attended planned call with State Assemblymember Bauer-Kahan on PFAS 3/28, 3/29, 3/30
- Worked with CASA CEF to launch Bruce Wolfe scholarship and attended CEF Board meeting, 3/30
- Developed authorization for NBWA sponsorship

**ASC (AQUATIC SCIENCE CENTER)**
- Reviewed materials sent via email by ASC ED

**BABC (BAY AREA BIOSOLIDS COALITION)**
- Reviewed revised draft White Paper on Biosolids application in the Baylands
- Attended and developed summary of meeting, 3/21

**BACC (BAY AREA CHEMICAL CONSORTIUM)**
- Reviewed bids and QA'd award spreadsheets
- Discussed bid awards with coordinator
- Reviewed communications with BACC members

**BACWWE (BAY AREA COALITION FOR WATER/WASTEWATER EDUCATION)**
- Reviewed BACCWE email discussions

**ADMINISTRATION:**
- Planned for and conducted the monthly BACWA staff meeting to prepare for the Board Meeting and to coordinate and prioritize activities.
- Met with RPM to discuss progress on regulatory issues

- Signed off on invoices, reviewed correspondence, prepared for upcoming Board meetings, responded to inquiries on BACWA efforts, oversaw and participated in updating of web page and provided general direction to BACWA staff.
- Worked with the RPM in the preparation of the monthly BACWA Bulletin.
- Developed and responded to numerous emails and phone calls as part of the conduct of BACWA business on a day-to-day basis.
- Reviewed 2022/23 SLIP Insurance application

**MISCELLANEOUS MEETINGS/CALLS:**

- Worked with BACWA Chair and Committee Chairs on items that arose during the month
- Other miscellaneous calls and inquiries regarding BACWA activities
- Responded to Board members' requests for information

# Board Calendar

May 2022 – July 2022 Meetings

| DATE | AGENDA ITEMS |
|---|---|
| May 6, 2022 | **Annual Meeting**<br>**David Brower Center, Berkeley** |
| June 17, 2022 | **Approvals & Authorizations:**<br>• FY23 Contracts<br>**Chair \ Vice Chair Succession**<br>**Policy / Strategic Discussion:**<br>• Key Tenants update<br>**Operational:**<br>• FY23 Executive Board Meeting location planning |
| July 15, 2022 | **Approvals & Authorizations:**<br>•<br>**Policy / Strategic Discussion:**<br>•<br>**Operational:** |

# BACWA ACTION ITEMS

| Number | Subject | Task | Responsibiity | Deadline | Status |
|---|---|---|---|---|---|
| | **Action Items from March 2022 BACWA Executive Board Meeting** | | **resp.** | **deadline** | **status** |
| 2022.3.37 | Regulatory: Update on baseline evaluation | BACWA ED to send out doodle pole for NST next meeting and some background information. | ED | 3/24/2022 | complete |
| 2022.3.38 | SSS WDR update and response | BACWA RPM will provide updated letter to BACWA community by March 25th. | RPM | 3/24/2022 | complete |
| 2022.3.39 | FY23 Draft Budget and workplan | BACWA ED will present FY23 Budget for approval at April 2022 Meeting | ED | 3/24/2022 | complete |
| 2022.3.40 | BACC Update | BACWA AED to send out 2021-2022 price comparison spreadsheet to BACWA Executive Board. | AED | 3/24/2022 | |
| 2022.3.41 | BACWA support letters for NMS fundraising efforts | BACWA ED to work with SFEP and other regional partners regarding the potential for collaboration on grant funding, and report back | ED | 3/24/2022 | complete |
| 2022.3.42 | Plain-language review of nutrient science program | BACWA ED to work with SFEI to augment plain-language review to include graphics, simplified text, and a summary of what we have learned so far. | ED | | on going |
| 2022.3.43 | Proposed agenda for BAAQMD workgroup meeting and attendees | BACWA ED will discuss agenda with Regional Water Board prior to meeting. | ED | 3/24/2022 | complete |
| 2022.3.44 | Proposed agenda for BAAQMD workgroup meeting and attendees | BACWA ED will set up meeting to plan workshop engagement. | ED | 3/24/2022 | complete |
| 2022.3.45 | Arleen Navarret award selection committee | BACWA ED to send nominations to selection committee members | AED | 3/24/2022 | Complete |
| | | | | | |
| | | | | | |
| | | | | | |
| | **Action Items Remaining from Previous BACWA Executive Board Meetings** | | | | |
| | | | | | |
| | | | | | |

FY22: 44 of 45 Action items are completed
FY21: 51 of 51 Action items completed
FY20: *70 of 70 Action Items completed*
FY19: *110 of 110 action Items completed*
FY18: *66 of 66 Action Items completed*
FY17: *90 of 90 Action Items completed*

# Regulatory Program Manager's Report to the Executive Board

**March 2022**

**BACWA BULLETIN**: Completed and circulated February Bulletin.

**NUTRIENTS:** Participated in discussions with HDR regarding nutrient loading statistical analysis.

**SSS-WDR:** Continued review of public draft SSS-WDR released on January 31. Held numerous discussions with Summit Partners (CASA, CVCWA, SCAP, CWEA) through the CASA Collection System Committee. Presented suggested comments to BACWA Executive Board. Discussed potential comments with Regional Water Board staff, BACWA members, and State Water Board staff. Presented oral comments at March 15th State Water Board workshop. Continued preparation of draft BACWA and partner organization comment letters.

**PFAS:** Reviewed draft Sampling and Analysis Plan for Phase 2 of PFAS Regional Study.

**CWEA:** Began preparation of slides for "Regulatory 101" session at CWEA Annual Conference.

**COMMITTEE SUPPORT:**

**BAPPG** – Attended pesticides committee meeting; assisted with planning of April 2022 meeting.
**Collection Systems** – See SSS-WDR section above.
**Laboratory** – Assisted with March TNI training session logistics; assisted with set up of TNI materials sharing site on BACWA's Box.com server.
**Recycled Water** – Assisted with preparation of agenda for March meeting; assisted with meeting coordination for site supervisor training video.
**Executive Board** – Attended Executive Board meeting and presented on SSS-WDR.

**ADMINISTRATION/STAFF MEETING –** Participated in monthly staff meeting.

**BACWA MEETINGS ATTENDED**:
AIR Committee (2/2)
BAPPG Pesticides Subcommittee (3/8)
BAPPG (3/9)
Nutrient Technical Team (3/14)
Executive Board (3/18)

**EXTERNAL EVENTS ATTENDED:**
CASA Collection System Committee and SSS-WDR comment preparation meetings (3/8, 3/9, 3/16, 3/30)
SWRCB Staff meetings to discuss SSS-WDR (3/10, 3/30)
SWRCB workshop on SSS-WDR (3/15)
Nutrient Management Strategy Technical Review Committee (3/11)
CASA RWG Workgroup Meeting (3/17)
CASA ACE Workgroup (3/24)