UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

SAN FRANCISCO BAYKEEPER,

Plaintiff,

v.

CITY OF SUNNYVALE, et al.,

Defendants.

Case No. 5:20-cv-00824-EJD

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Plaintiff San Francisco Baykeeper is a non-profit environmental organization dedicated to protecting the waters in and around the San Francisco Bay Area. In 2020, Baykeeper filed suit against the Cities of Sunnyvale and Mountain View for alleged violations of the Clean Water Act. Specifically, Baykeeper alleged that the Cities were violating applicable permits by discharging high levels of bacterial pollution into certain waters and thereby contributing to violations of water quality standards. Following a bench trial, and as further detailed in the findings of fact and conclusions of law below,[1] the Court concludes that the Cities are in violation of certain provisions in the applicable permits but that Baykeeper has failed to establish civil penalties are appropriate. The Court defers its decision on whether to enter a permanent injunction pending further briefing.

I. FINDINGS OF FACT

A. Regulatory Framework

1. The Cities own and operate municipal separate storm sewer systems (MS4s). As the name suggests, MS4s are sewer systems dedicated to carrying stormwater separate from

[1] Any findings of fact that constitute conclusions of law shall be deemed to have been found by the Court as a matter of law. Likewise, any conclusions of law that constitute findings of fact shall be deemed to have been found by the Court as a matter of fact.

sanitary sewer systems that carry wastewater. Trial Tr. at 381:7–12, 402:5–8, 945:19–21.[2]

2. Under the Clean Water Act, municipalities must obtain a National Pollution Discharge Elimination System (NPDES) permit to make certain discharges—including discharges from MS4s—into waters covered by the Act. *See* 33 U.S.C. §§ 1311(a), 1342(p).

3. The Cities' MS4s discharge into Stevens Creek, Calabazas Creek, and the Sunnyvale East Channel. *See* Ex. 28 at 2.[3] Each of these waters subsequently flow into Guadalupe Slough and the South San Francisco Bay. Trial Tr. at 249:17–250:5. All five of the identified waters are "Waters of the United States" covered by the Clean Water Act. *See* ECF No. 139 at 20–22 (summary judgment); ECF No. 199 at 6–8 (denying reconsideration); ECF No. 393 at 5–6 (denying reconsideration again).[4] As such, discharges into those five waters are governed by NPDES permits.

1. Applicable NPDES Permits

4. From January 1, 2016, to June 30, 2022, the Cities operated under an NPDES permit issued by the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) on November 19, 2015 (the 2015 Permit). Ex 1. at 1–2, 7; Ex. 2 at 8. On July 1, 2022, the 2015 Permit was superseded by a new permit issued on May 11, 2022 (the 2022 Permit). Ex. 2 at 1, 8. The Cities are currently operating under the 2022 Permit.

5. The 2015 and 2022 Permits contain two identical provisions that restrict the Cities' discharges. The first is Discharge Prohibition A.1, and the second is Receiving Water Limitation B.2. Ex. 1 at 8; Ex. 2 at 9–10. These provisions read in relevant part as follows:

> **Discharge Prohibition A.1**: The Permittees shall, within their respective jurisdictions, effectively prohibit the discharge of non-stormwater (materials other than stormwater) into storm drain systems and watercourses.

[2] The trial transcript is located at ECF Nos. 357–59, 367–69, 384–88, 390.

[3] The Court uses "Ex." to cite to the trial exhibits filed at ECF Nos. 395–407. All pincites to trial exhibits are to the ECF-generated pagination unless otherwise indicated.

[4] Having thrice addressed this issue, the Court does not further engage with the Cities' arguments on this matter for a fourth time.

> **Receiving Water Limitation B.2**: The discharge shall not cause or contribute to a violation of any applicable water quality standard for receiving waters [*i.e.*, waters that receive a discharge]. If applicable water quality objectives are adopted and approved by the State Water Board after the date of the adoption of this [Permit], the Water Board may revise and modify this [Permit] as appropriate.

Ex. 1 at 8; Ex. 2 at 9–10.[5]

6. Both the 2015 and 2022 Permits contain nearly identical Provisions C.1, which identify alternative pathways for the Cities to comply with Prohibition A.1 and Limitation B.2. These alternative pathways consist of other C Provisions within the permits, and the only relevant difference between the two permits is that there are slight variations in the provisions making up these alternative pathways. The relevant portion of the 2015 Provision C.1 is reproduced below:

> The Permittees shall comply with Discharge Prohibitions A.1 and A.2 and Receiving Water Limitations B.1 and B.2 through the timely implementation of control measures and other actions as specified in Provisions C.2 through C.16.5. Compliance with Provisions C.9 through C.12, C.14, and C.16.5 of this [Permit] . . . shall constitute compliance during the term of this [Permit] with Receiving Water Limitations B.1 and B.2 for the pollutants and the receiving waters identified in the provisions. Compliance with Provisions C.10 and C.16.5 . . . shall also constitute compliance with Discharge Prohibitions A.1 and A.2 during the term of this [Permit] for discharges of trash.

Ex. 1 at 9. The 2022 Provision C.1 reads the same except that it identifies different C Provisions as constituting alternative compliance pathways. Ex. 2 at 11.

7. Of the potential alternative pathways to compliance cited above, Provision C.14 deals with the bacteria standards at issue in this case. In the 2015 Permit, Provision C.14 applied only to the City of Pacifica and San Mateo County, not to the Cities here. Ex. 1 at 128; Trial Tr. at 1069:10–14. However, in the 2022 Permit, the Regional Water Board introduced Provision C.14.a, which expressly applies to the Cities. Ex. 2 at 179. Provisions C.14.a.i–iv direct the Cities to evaluate and develop best management practices for the control of four potential sources of bacterial discharges: municipal operations, industrial and commercial sites, unsheltered homeless

[5] Limitation B.2 references both "water quality standards" and "water quality objectives." The two are technically different. Ex. 2 at 257. But for purposes of this case, neither party has argued that the difference is significant, so the Court uses "standards" and "objectives" interchangeably.

populations, and pets or livestock. *Id.* at 179–82. Provisions C.14.a.v–viii direct the Cities to undertake four specific tasks: conduct public outreach, coordinate with sanitary sewer entities, prioritize trash removal, and perform water quality monitoring. *Id.* at 182–85. Finally, Provision C.14.a.ix sets milestones for compliance and imposes reporting requirements. *Id.* at 185–86.

8. Finally, both the 2015 and 2022 Permits contain Provisions C.1.a–b, which require the Cities to report to the Regional Water Board within thirty days of determining that any of the Cities' discharges "are causing or contributing to an exceedance of an applicable [water quality standard]." Ex. 1 at 9; Ex. 2 at 11. Such exceedance reports must identify the Cities' current efforts to control their discharges as well as the additional controls that they intend to implement to address exceedances. Ex. 1 at 9; Ex. 2 at 11.

2. Applicable Water Quality Standards

9. All applicable water quality standards are found in the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)—the Regional Water Board's "master water quality control planning document." Ex. 1 at 6. The Basin Plan designates the beneficial uses of waters within the San Francisco Bay region, meaning that it specifies the uses for which a water is being protected (*e.g.*, recreation, aesthetic enjoyment, or agricultural and industrial supply). *Id.* at 6, 155. It then sets water quality objectives based on beneficial use. *E.g.*, Ex. 3.

10. The Basin Plan designates Stevens Creek, Calabazas Creek, Guadalupe Slough, and the San Francisco Bay—but not the Sunnyvale East Channel—for REC-1 use. Ex. 1146 at 336; Trial Tr. at 117:23–118:1; 214:25–215:9. REC-1 refers to "Water Contact Recreation" and includes all "[u]ses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible," such as swimming or wading. Ex. 1146 at 11.

11. Table 3-1 of the Basin Plan provides the REC-1 water quality objectives for bacteria. *Id.* at 349. These objectives are presented in terms of averages, percentiles, and statistical threshold values (STVs) calculated from multiple samples. *Id.* The STV is the value that "shall not be exceeded by more than 10 percent of the samples collected in a calendar month." *Id.* There are two sets of applicable bacteria objectives; each was in effect at different times during the relevant period.

12. Before March 22, 2019, the REC-1 objectives were expressed in terms of fecal coliform and total coliform concentrations. Ex. 1150 at 6. Compliance with those objectives was measured by calculating the relevant statistical values using "a minimum of five consecutive samples equally spaced over a 30-day period." *Id.* (footnote a).

13. On August 7, 2018, the California State Water Resources Control Board (State Water Board) issued a staff report proposing new bacterial water quality objectives. Ex. 1036 at 17. The staff report proposed replacing fecal coliform and total coliform objectives with E. coli objectives for fresh waters, and with Enterococcus objectives for marine and salt waters. *Id.* at 15–17; Ex. 1146 at 349 (footnote g). These new objectives became effective "upon adoption by the State Water Board and approval by the state Office of Administrative Law and U.S. EPA." Ex. 1036 at 18; *see also* 40 C.F.R. § 131.21(c); 33 U.S.C. § 1313(c)(3). After the State Water Board adopted the proposed objectives, the Office of Administrative Law approved them on February 9, 2019, and the EPA approved them on March 22, 2019. Ex. 1149 at 1–2. The proposed objectives therefore became effective on March 22, 2019. Trial Tr. at 1310:4–12.

14. Although the proposed objectives became effective on March 22, 2019, they were not formally incorporated into an amended Basin Plan until February 8, 2022, after the Office of Administrative Law and EPA approved a Regional Water Board resolution. Ex. 1065 at 20; Ex. 1148. The amended Basin Plan specified that compliance with these updated objectives would be measured by calculating geometric means (a type of average) using "all samples in a 6-week interval," and that STV would be determined based on "samples collected in a calendar month." Ex. 1065 at 20 (footnote g). There have been no changes to the applicable bacteria objectives since the February 8, 2022 revision of the Basin Plan. Trial Tr. at 1313:8–10.

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15. The REC-1 objectives are given below:

Effective Period	Fecal Coliform (MPN/100 mL)[6]	Total Coliform (MPN/100 mL)	Enterococcus (CFU/100 mL)	E. Coli (CFU/100 mL)
Pre-March 22, 2019	geometric mean < 200 90th percentile < 400	median < 240 no sample > 10,000	—	—
March 22, 2019 through present	—	—	geometric mean < 30 STV < 110	geometric mean < 100 STV < 320

Ex. 1150 at 6 (pre-Mar. 22, 2019); Ex. 1146 at 349 (present objectives).

B. Baykeeper's Challenge to the Cities' Discharges

16. In December 2019, Baykeeper sent letters to the Cities alleging that the Cities were in violation of the Clean Water Act and giving notice that Baykeeper intended to sue. Exs. 1049, 1050. The letters asserted that the Cities were unlawfully discharging bacteria from their MS4s in violation of Discharge Prohibition A.1 and Receiving Water Limitation B.2 in the 2015 Permit.[7] Ex. 1049 at 1, 9–12; Ex. 1050 at 1, 9–11. Baykeeper claimed that these alleged violations were caused by exfiltration, the process by which wastewater leaks through cracks or other structural defects in sanitary sewer systems and then enters MS4s through similar structural defects. Ex. 1049 at 4–5; Ex. 1050 at 5. In other words, Baykeeper claimed that leaks from the Cities' sanitary sewer systems were the source of bacteria found in discharges from the Cities' MS4s.

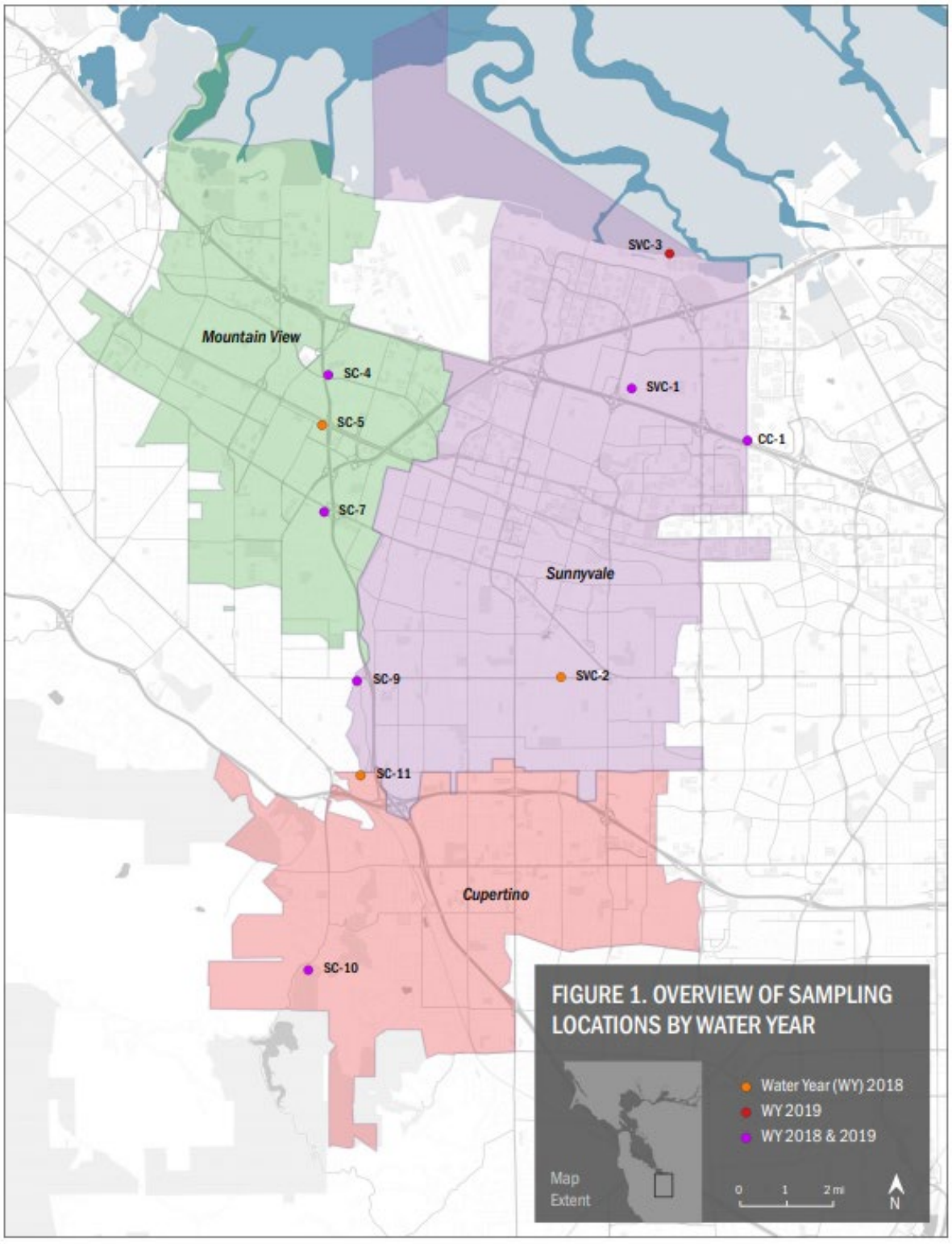
1. Water Quality Data: 2017–2019

17. To support its intent-to-sue letters, Baykeeper collected water samples for bacterial testing at sites along Calabazas Creek (CC), Stevens Creek (SC), and the Sunnyvale East Channel

[6] MPN means "most probable number" while CFU means "colony forming units." Ex. 1146 at 350. The two units of measurement are equivalent—the choice of unit depends only on the method used to detect bacteria. *Id.*; Trial Tr. at 118:8–19.

[7] Baykeeper also asserted violations of Receiving Water Limitation B.1.e, but it later abandoned those alleged violations in its operative complaints. *Compare* Ex. 1049 at 9, *and* Ex. 1050 at 9, *with* ECF Nos. 140, 141.

(SVC). This collection occurred from November 2017 to February 2019, Ex. 60 at 2–5, at the sites identified on the map below.



Ex. 28 at 2.

18. Two of these sites are particularly notable. The first is SC-10. That site is located upstream of the Cities at a point before any of the Cities' MS4 discharges could have entered Stevens Creek. Ex. 60 at 4. Samples from SC-10 therefore serve as references for water quality in Stevens Creek before any discharges from the Cities enter the Creek. The second is SVC-3, which sits at the confluence of the Sunnyvale East Channel and Guadalupe Slough. *Id.* at 5. Samples from SVC-3 provide insight into how water flowing out of the Sunnyvale East Channel mixes with and affects water quality in Guadalupe Slough.

19. Some samples were collected at the outfall of a site, *i.e.*, the end of the storm sewer pipe where water discharges out of an MS4. Trial Tr. at 225:12–18, 423:16–22. Others were collected either upstream or downstream of the outfall. *See* Ex. 60 at 3–4. Outfall, upstream, and downstream samples were labeled with "OF," "US," and "DS," respectively. Trial Tr. at 109:25–110:7. SC-10 and SVC-3 are sites where there is no outfall, so those sites are labeled "RW" for receiving water. *Id.* at 134:15–16; 423:16–22; Ex. 60 at 4–5. The dates on which Baykeeper collected samples are below.

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Site	Sampling Dates
CC-1-DS	3/22/2018, 1/17/2019, 1/23/2019, 2/1/2019, 2/4/2019, 2/13/2019, 2/22/2019
CC-1-OF	3/22/2018, 1/17/2019, 2/4/2019, 2/13/2019
CC-1-US	3/22/2018, 1/17/2019, 2/4/2019, 2/13/2019
SC-4-DS	11/16/2017, 3/22/2018, 1/17/2019, 1/23/2019, 2/1/2019, 2/4/2019, 2/13/2019, 2/22/2019
SC-4-OF	11/16/2017, 3/22/2018, 1/17/2019, 2/4/2019, 2/13/2019
SC-4-US	3/22/2018, 1/17/2019, 2/4/2019, 2/13/2019
SC-5-DS	11/16/2017
SC-5-OF	11/16/2017
SC-7-DS	11/16/2017, 1/17/2019, 2/1/2019, 2/4/2019, 2/13/2019, 2/22/2019
SC-7-OF	11/16/2017, 1/17/2019, 2/4/2019, 2/13/2019
SC-7-US	1/17/2019, 2/4/2019, 2/13/2019

Site	Sampling Dates
SC-9-DS	3/1/2018, 1/17/2019, 1/23/2019, 2/1/2019, 2/4/2019, 2/13/2019, 2/22/2019
SC-9-OF	3/1/2018, 1/17/2019, 2/4/2019, 2/13/2019
SC-9-US	3/1/2018, 1/17/2019, 2/4/2019, 2/13/2019
SC-10-RW	3/1/2018, 3/22/2018, 1/17/2019, 1/23/2019, 2/1/2019, 2/4/2019, 2/13/2019, 2/22/2019
SC-11-DS	3/22/2018
SC-11-OF	3/22/2018
SC-11-US	3/22/2018
SVC-1-DS	3/1/2018, 3/22/2018, 1/17/2019, 1/23/2019, 2/1/2019, 2/4/2019, 2/13/2019, 2/22/2019
SVC-1-OF	3/22/2018
SVC-2-DS	3/1/2018
SVC-3-RW	1/17/2019, 1/23/2019, 2/1/2019, 2/4/2019, 2/13/2019, 2/22/2019

See Ex. 60 at 3–5 (Table 2); Exs. 14–22.[8]

[8] Exhibits 14 through 22 are the underlying lab results that make up Table 2 in Exhibit 60. There are some labeling errors in the lab results that are corrected in Table 2, so the dates reported in the Court's finding of fact come from Table 2.

First, in some of the lab results, SVC-3 was mistakenly labeled as SVC-2. Trial Tr. at 327:14–17; Exs. 14, 18. The Court therefore treats references in the lab results to "SVC-2-RW," which does not exist, as references to SVC-3-RW. This is consistent with Table 2.

Second, there are some obvious typos in the site identifiers listed in the lab results. Table 2 accounts for these obvious typos.

20. Baykeeper's samples were collected pursuant to quality assurance plans developed by its water quality expert, Ian Wren. *See* Ex. 57 at 14, 25–29; Ex. 58 at 13, 20–23; Trial Tr. at 101:10–15, 103:13–104:15. However, Baykeeper deviated from those plans in a few ways. For one, Baykeeper employees did not use a "clean hands/dirty hands" procedure to collect samples. Trial Tr. at 104:12–21, 1425:14–18. Baykeeper employees also entered the water to collect samples, creating the possibility that they may have contaminated the samples by kicking up sediment from the bottom of the waterways. *Id.* at 1425:20–1426:20. Separately, the Cities' water quality expert, Brandon Steets, expressed some concern that outfall samples were collected in ways that mixed waters in the storm sewer pipes of the outfall with the receiving waters into which the pipes discharged.[9] *Id.* at 1421:14–1423:11.

21. Despite these potential issues, the Court concludes that Baykeeper collected its water samples reliably and without contamination. The clean hands/dirty hands procedure was not necessary for the samples collected in this case because that procedure is used when testing for trace metals, not for bacteria. *Id.* at 104:15–24. Baykeeper mitigated concerns about sediment contamination by ensuring that the employee collecting samples in the water moved from downstream to upstream. *Id.* at 1426:2–5, 1589:7–1591:20. And finally, Baykeeper employees carefully avoided mixing when collecting outfall samples. *Id.* at 1587:11–1588:2.

22. Apart from finding that these samples were collected reliably, the Court also finds that these samples were tested reliably with one exception. Baykeeper submitted these samples to Alpha Analytical Laboratories, Inc. for E. coli and Enterococcus testing. Exs. 14–22. At the time of submission, Alpha Analytical was state-accredited to perform precisely those tests. Ex. 23 at 1, 9. Although Alpha Analytical no longer had access to the raw data or quality assurance data underlying its testing results by the time of trial, Trial Tr. at 46:9–47:6, that fact alone does not call its testing results into question. Testimony showed that experts routinely rely on accredited

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Finally, some results for the November 16, 2017 samples were apparently mislabeled. The results labeled as SC-3 were actually from SC-4, and the results labeled as SC-6 were actually from SC-5. *Compare* Ex. 15 at 2, *with* Ex. 49 at 1.

[9] Mr. Steets also raised administrative and clerical concerns that do not call the reliability of Baykeeper's sampling into doubt. *E.g.*, Trial Tr. at 1426:24–1427:5.

labs to conduct water quality testing without reviewing the underlying data. *Id.* at 419:12–20, 1607:10–14. Moreover, there was no indication that any of the final results were inaccurate other than the results for samples collected on March 22, 2018.[10] Thus, Alpha Analytical's testing results are reliable except for the March 22 results.

2. Results and Analysis

23. Baykeeper's expert, Mr. Wren, analyzed the January and February 2019[11] water testing results for both the outfall and downstream samples at the following sites: SC-4, SC-7, SC-9, and CC-1. He also analyzed the test results at the SC-10, SVC-1, and SVC-3 sites, for which Baykeeper collected downstream and receiving water samples but not separate outfall samples. Mr. Wren summarized his analysis in the box plots below (Ex. 60 at 9–10).

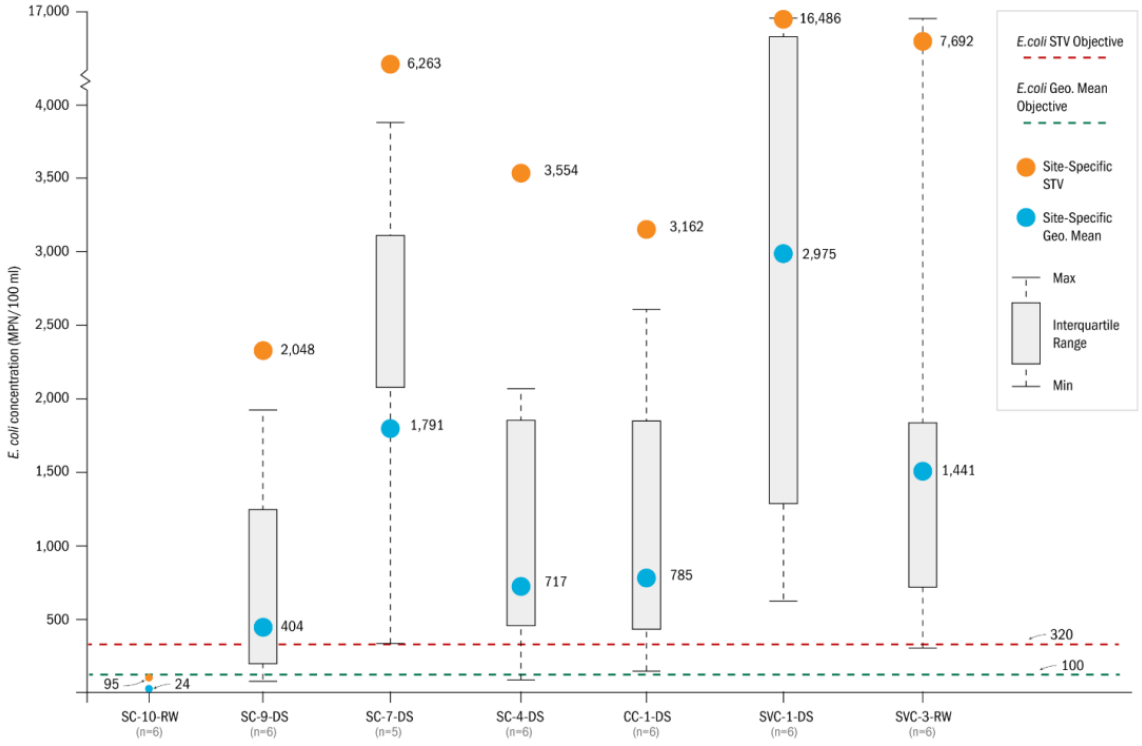

Figure 1. Summary statistics of results for E. coli in Receiving Waters downstream of outfalls

[10] Testing of the March 22 samples indicated that E. coli is numbers were higher than fecal coliform numbers, even though E. coli may be a subset of fecal coliform. Ex. 17; Trial Tr. at 51:6–10. The Court thus does not rely on the March 22 results in its findings or conclusions.

[11] In his analysis, Mr. Wren used only test results from Water Year 2019 (October 1, 2018 through September 30, 2019). Trial Tr. at 102:25–103:8, 153:3–16. The only samples that Baykeeper collected in Water Year 2019 were from January and February 2019. Ex. 60 at 3–5.

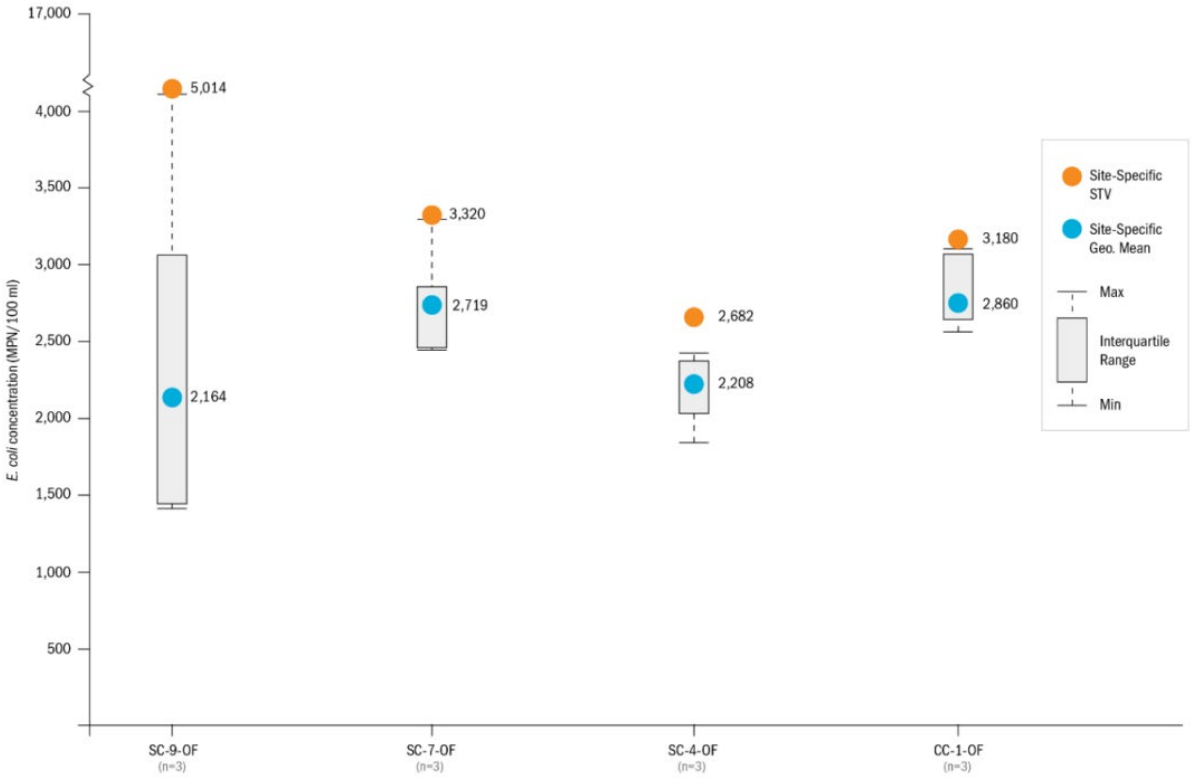

Figure 2. Summary statistics of results for E. coli at sampled outfalls

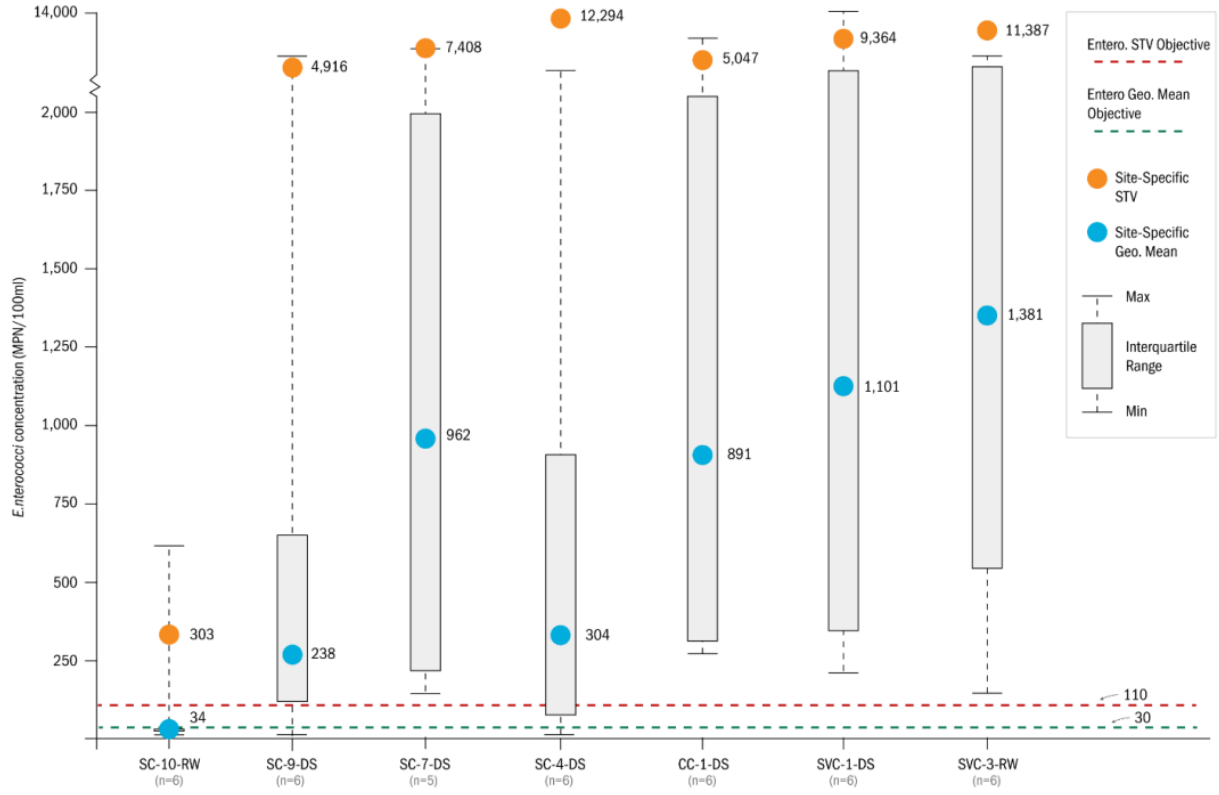

Figure 3. Summary statistics of results for Enterococci in Receiving Waters downstream of outfalls

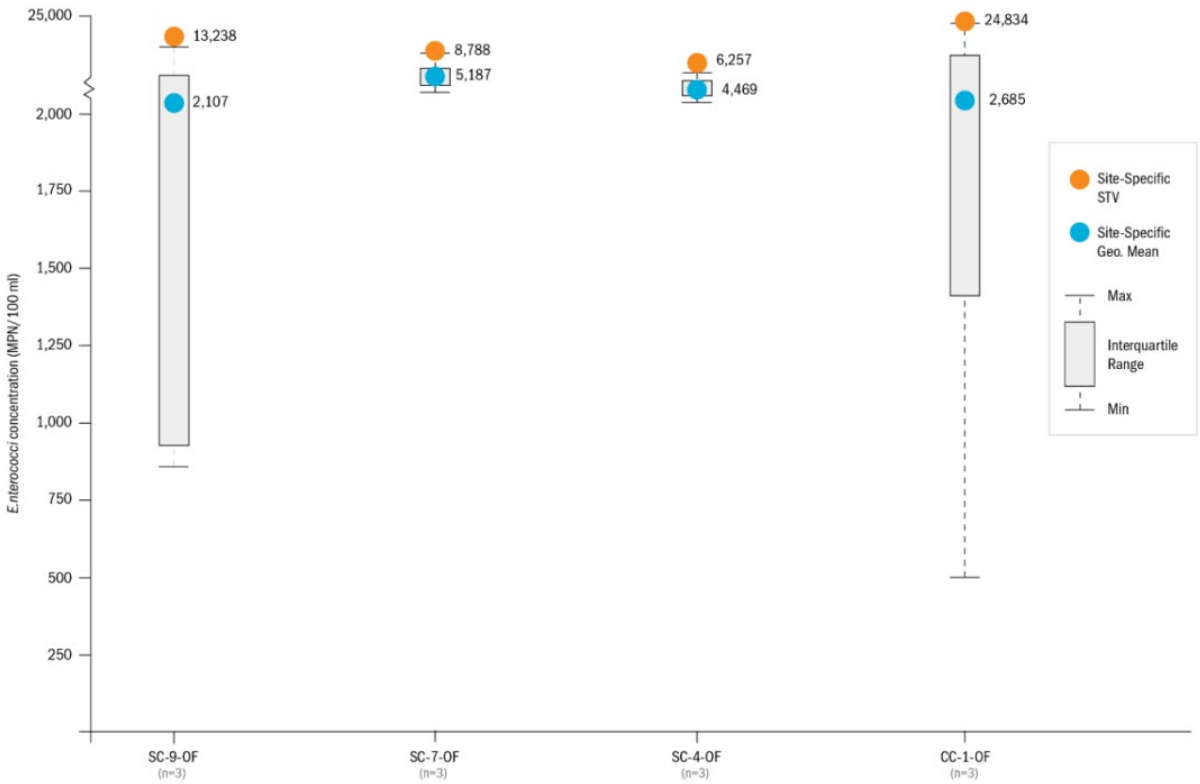

Figure 4. Summary statistics of results for Enterococci at sampled outfalls

24. As Figures 1 and 3 illustrate in stark visual terms, the bacteria levels in both the receiving waters and outfalls being analyzed above, except for the SC-10 reference site, were significantly above present-day limits for both E. coli and Enterococcus. *See* Ex. 60 at 9–10; Ex. 1146 at 349. Another one of Baykeeper's experts, Kevin Draganchuk, performed the same analysis and reached the same results when accounting for rounding errors. Ex. 70 at 3.

25. When Baykeeper collected the samples analyzed above, the pre-March 2019 water quality objectives were in effect. *Supra* Finding of Fact 12. Those objectives were measured by total coliform and fecal coliform numbers, not by the E. coli and Enterococcus numbers that Baykeeper tested for. Ex. 1150 at 6. Nonetheless, the Court finds that Baykeeper's testing and the above analysis establish violations of those total coliform and fecal coliform objectives.

26. E. coli is a subset of either fecal coliform or total coliform. Trial Tr. at 51:6–10. If E. coli is a subset of fecal coliform, then fecal coliform levels must be greater than or equal to E. coli levels. That is, fecal coliform geometric means must have been at least as high as the E. coli geometric means reflected in Figures 1 and 2 above. And each of those E. coli geometric means is greater than the corresponding geometric mean limit for fecal coliform under the pre-March 2019

water quality objectives, except at the SC-10 reference site. *See* Ex. 60 at 9; Ex. 70 at 3; Ex. 1150 at 6. The Court therefore infers that, had Baykeeper tested for fecal coliform, those testing results would have yielded geometric means above the pre-March 2019 standards for fecal coliform.

27. If E. coli is instead a subset of total coliform, then total coliform levels must be greater than or equal to E. coli levels. In that case, total coliform medians would be at least as high as the E. coli medians from Baykeeper's January and February 2019 test results. Those E. coli medians exceeded the pre-March 2019 water quality standards, except at the SC-10 reference site. *See* Ex. 70 at 4; Ex. 1150 at 6. So once again, the Court infers that, had Baykeeper performed total coliform testing, those testing results would have yielded medians above the pre-March 2019 standards for total coliform.

28. That said, Baykeeper did not collect "a minimum of five consecutive samples equally spaced over a 30-day period" as required to directly establish a water quality violation under the pre-March 2019 standards. Ex. 1150 at 6 (footnote a). While Baykeeper collected five or more samples at each of the sites above, those samples did not always fit precisely in a thirty-day window and were not evenly spaced in time. *See* Ex. 60 at 3–5. Still, the testing results at those sites were consistently and significantly above the relevant pre-March 2019 objectives, and any temporal deviations were minor. *See* Exs. 14, 18–22. Accordingly, the Court infers that perfectly spaced tests over thirty days would still reveal bacteria levels far above the relevant water quality standards—fecal coliform geometric means and total coliform medians—and the minor temporal deviations in Baykeeper's sample collection are inconsequential. The Court therefore finds that Baykeeper's testing proves violations of the pre-March 2019 standards in Stevens Creek and Calabazas Creek in January and February 2019.

29. Had the present-day E. coli and Enterococcus standards applied, Baykeeper's testing would have shown violations of those standards as well. The above analyses directly prove that there were violations of the present-day STV objectives for E. coli and Enterococcus because the analyses are based on a calendar month of testing data, as the Basin Plan requires. Ex. 60 at 3–5; Ex. 1065 at 20 (footnote g).

30. These analyses also prove violations of the present day geometric mean objectives for E. coli and Enterococcus, albeit indirectly. The current Basin Plan requires six weeks' worth of testing data to establish a water quality violation under the geometric mean objectives. Ex. 1065 at 20 (footnote g). However, Baykeeper collected only about five weeks' worth of samples in the downstream and receiving waters for the relevant sites. Ex. 60 at 3–5. Still, because Baykeeper's testing revealed that bacteria levels were consistently and significantly above the geometric mean objectives, the Court infers that a sixth week of testing would also have yielded results significantly above those objectives. *See* Exs. 14, 18–22.

31. The Court therefore finds that there were water quality violations, based on both the present-day STV and geometric mean objectives for both E. coli and Enterococcus,[12] in Stevens Creek and Calabazas Creek between January and February 2019.

32. However, the Court finds that Baykeeper has not established violations in the Sunnyvale East Channel. The East Channel is not designated for REC-1 use, so the objectives analyzed above do not apply to it. Trial Tr. at 214:25–215:9. And Baykeeper has not argued that any other objective applies to the East Channel and was violated.

33. The Court also finds that Baykeeper's testing does not establish that there were any water quality violations in the South San Francisco Bay. Baykeeper did not take any water quality samples from the Bay that could have directly established water quality violations there. Instead, Baykeeper collected samples from waters that flow into the Bay—Stevens Creek, Calabazas Creek, and the Sunnyvale East Channel—and proved that there were exceedances in those waters. But the Bay is far larger than the Creeks and East Channel, so any bacterial pollution flowing from those waters into the Bay may be significantly diluted. *See* Trial Tr. at 382:8–11 (bacterial pollution may be diluted when more polluted waters are mixed with less polluted ones). Given the potential for dilution, the Court finds that the evidence does not support an inference that water

[12] The E. coli and Enterococcus standards apply to different waters. Ex. 1146 at 349 (footnote g). The Court does not distinguish between the standards in concluding that there were violations of present objectives in January and February 2019 because the data shows that there would be violations regardless of which standard applied.

quality exceedances in the Creeks and East Channel establish violations in the Bay itself.

34. Similarly, the data does not demonstrate water quality violations in Guadalupe Slough. Baykeeper did perform some testing of the Slough at SVC-3. But SVC-3 is located at the confluence of the Sunnyvale East Channel and the Slough. Ex. 60 at 5. The bacterial pollutants within the East Channel's water would not yet have fully dispersed throughout the Slough at SVC-3. As such, the bacterial concentrations at SVC-3 may not be representative of bacterial pollution throughout the Slough as a whole. *See* Trial Tr. at 1421:20–1422:11 (describing an analogous situation where samples are collected at the confluence of an outfall and receiving water). Since SVC-3 is not representative of the Slough as a whole, and the record contains no other testing in the Slough, the Court finds that the evidence does not support an inference that there were water quality violations in the Slough.

C. The Cities' Response

1. C.1 Report

35. After receiving Baykeeper's intent-to-sue letters and accompanying water quality testing data, the Cities submitted a report to the Regional Water Board as required by Provision C.1.a (the C.1 Report). Ex. 7; Trial Tr. at 1056:10–1057:4. In the C.1 Report, the Cities explained that, based on a "cursory review of the limited data summary provided by Baykeeper," they "determined that discharges from their MS4s may be potentially causing or contributing to exceedances of bacteria [water quality objectives]." Ex. 7 at 7.

36. In their C.1 Report, the Cities provided their plans for remediating the alleged violations identified by Baykeeper. To start, the Cities committed to building a Geographic Information System (GIS) database that maps out the relevant waters, sewer infrastructure, and potential bacteria sources. *Id.* at 23–24. The Cities intended to use this GIS database to model bacterial discharges and identify key locations for monitoring or other water quality studies. *Id.* at 24–26. Apart from modeling and source identification, the Cities also made plans to mitigate bacterial pollution from specific types of sources. For example, both Cities indicated that they would offer hygiene and waste management services to homeless populations in addition to more general outreach and support services. *Id.* at 29–32. The Cities also promised to redouble their

efforts to prevent sanitary sewer overflow events and to study potential exfiltration. *Id.* at 34–35; *see also infra* Section I.D. And they pledged to monitor pet waste and illicit discharges, and to continue installing stormwater treatment infrastructure such as trash capture systems and retention basins. Ex. 7 at 36–38.

2. Mid-Interpretive Report

37. After the Regional Water Board issued the 2022 Permit, the Cities began taking steps to comply with the newly imposed Provision C.14.a, which directs the Cities to evaluate and develop practices to control bacterial pollution. Ex. 2 at 179–82. As part of those efforts, the Cities submitted regular reports to the Regional Water Board. This included annual reports submitted in September 2023 and 2024 as well as a more comprehensive Mid-Permit Interpretive Report submitted in March 2025. *See* Exs. 9–10 (annual reports), 11 (Interpretive Report). The Mid-Interpretive Report detailed the steps the Cities had taken to comply with Provision C.14.a.

a. Sunnyvale's Actions

38. Provision C.14.a.i. Municipal Operations. Sunnyvale conducts regular street, sidewalk, plaza, and pavement cleanings. Ex. 11 at 111. It also performs regular maintenance on MS4 components. *Id.* To avoid runoff from these cleaning activities, Sunnyvale employs dry cleaning methods where possible. *Id.* When wet cleaning is needed, Sunnyvale either discharges wastewater directly into sanitary sewers or stores wastewater for later disposal into sanitary sewers. *Id.*

39. Provision C.14.a.ii Industrial/Commercial Sites. Sunnyvale has established practices for limiting bacterial runoff from various industrial or commercial activities such as roof or exterior washing, the use of outdoor bins, and the use of portable toilets. *Id.* at 112. Specifically, Sunnyvale has created rules against the draining of dirty water outdoors, requiring efforts to keep trash enclosures clean, and requiring covers for industrial equipment and material storage areas. *Id.* To enforce these rules, Sunnyvale conducts annual inspections for what it considers high priority business while inspecting other businesses every three years. *Id.*

40. Provision C.14.a.iii Unsheltered Homeless Populations. Sunnyvale has convened a work group to develop policies and other supportive services for unsheltered populations. *Id.* at

113. This includes outreach efforts to connect unsheltered individuals with services as well as providing mobile hygiene services that provide restrooms, showers, and laundry. *Id.* at 113–14. Sunnyvale also regularly cleans up waste and debris generated by encampments. *Id.* at 114.

41. Provision C.14.a.iv Pets and Livestock. Sunnyvale has installed additional pet waste stations, put up signs to inform the public that they are responsible for picking up their pets' waste, and conducted regular inspections of dog parks, kennels, animal hospitals, and the like. *Id.* at 115.

42. Provision C.14.a.v Public Outreach. Sunnyvale reminds its residents and businesses to take actions preventing bacterial pollution via contact that takes place through enforcement and inspection. *Id.* at 117. Separately, Sunnyvale also distributes literature on the maintenance of waste disposal areas and has conducted public events reminding its residents to clean up after their pets. *Id.* at 116–17.

43. Provision C.14.a.vi Coordination with Sanitary Sewer Entities. Sunnyvale adheres to a sewer system management plan, regularly inspects its sanitary sewers using CCTV, offers courtesy private sewer lateral cleaning, and has plans for sanitary sewer repairs and for responding to overflows. *Id.* at 117–18. These efforts are discussed in greater detail below in Section I.D.1.

44. Provision C.14.a.vii Prioritize Trash Removal. Sunnyvale has installed screens and other trash control devices in its MS4. *Id.* at 118. It also issues warnings to and works with owners of properties where litter is observed, conducts inspections of areas where trash is stored, and conducts regular cleanups. *Id.*

45. Provision C.14.a.viii Water Quality Monitoring. Sunnyvale has conducted sampling and testing as described in Section I.C.3 below.

b. Mountain View's Actions

46. Provision C.14.a.i. Municipal Operations. Ahead of commencing municipal operations, Mountain View trains its workers on applicable water quality regulations to ensure that its employees do not inadvertently contribute to violations of an NPDES permit. Trial Tr. at 1082:1–15. It also instructs its municipal workers on how to report potential violations, and it hires a third party to inspect its own facilities for violations. *Id.* at 1082:8–12, 1082:22–1083:1.

Mountain View regularly sweeps and cleans roads, sidewalks, pavement, and catch basins. *Id.* at 1083:2–3; Ex. 11 at 57. It also collects and disposes in sanitary sewers any water used for that cleaning. Ex. 11 at 57.

47. Provision C.14.a.ii Industrial/Commercial Sites. Like Sunnyvale, Mountain View has established rules against the draining of dirty water outdoors, requiring efforts to keep trash enclosures clean, and requiring covers for industrial equipment and material storage areas. *Id.* at 121. Mountain View conducts monthly or annual inspections for what it considers high priority business while inspecting other businesses every three to five years. *Id.*; Trial Tr. at 1084:11–24. This includes inspecting construction areas to ensure that developers are retaining runoff and avoiding discharges from portable toilets. Trial Tr. at 1083:9–1084:4, 1085:7–1086:3.

48. Provision C.14.a.iii Unsheltered Homeless Populations. Mountain View has established a Human Services Manager position responsible for addressing homelessness-related issues. Ex. 11 at 122. In addition, Mountain View has been providing additional portable toilets and handwash stations, as well as performing outreach to individuals in RVs to avoid dumping of sewage from those vehicles. *Id.* at 122–23.

49. Provision C.14.a.iv Pets and Livestock. Mountain View has installed more pet waste stations, conducted outreach to and inspections of pet-related facilities, and posted additional signage regarding the proper cleanup and disposal of pet waste. *Id.* at 123.

50. Provision C.14.a.v Public Outreach. Mountain View has participated in community events where it has informed residents and visitors about the importance of proper waste management. *Id.* at 124; Trial Tr. at 1086:18–25. It has also made social media posts and updated its website with the same. Ex. 11 at 125.

51. Provision C.14.a.vi Coordination with Sanitary Sewer Entities. Mountain View has a sewer system management plan and provides courtesy service to private sewer laterals that might spill and contribute to bacterial pollution. *Id.* at 125. It has also undertaken various capital improvement projects to improve their sanitary sewer infrastructure. *Id.* at 126–27. These efforts are discussed in greater detail below in Section I.D.2.

52. Provision C.14.a.vii Prioritize Trash Removal. Mountain View conducts deep cleanings of areas where RV parking might lead to the accumulation of trash or waste. *Id.* at 127. It has also installed trash capture systems on some of its MS4 drain inlets and regularly cleans those systems. Trial Tr. at 1089:3–7.

53. Provision C.14.a.viii Water Quality Monitoring. Mountain View has conducted sampling and testing as described in Section I.C.3 below.

3. Water Quality Data: 2022–2024

54. The Cities conducted their own water quality monitoring from 2022 to 2024 as part of their obligations under Provision C.14.a.viii of the 2022 Permit. Ex. 2 at 183–85; Ex. 11 at 23. This monitoring consisted of three phases. First, the Cities conducted creek walks—inspections of outfalls along the length of Stevens and Calabazas Creeks, including some outfall sampling—in August 2022, January 2023, and May 2023. Ex. 11 at 23, 25–26. Second, the Cities collected 144 outfall samples over the course of 15 monthly sampling events from July 2022 through September 2023. Ex. 11 at 23. Finally, the Cities collected 86 receiving water samples over the course of 12 monthly sampling events from October 2023 through September 2024. *Id.* These monthly sampling events occurred at both Creeks as well as the Sunnyvale East Channel. *Id.* at 31–32, 35.

55. Each of the Cities' samples were collected within the Cities' boundaries, although the Cities' sampling sites did not match up with Baykeeper's sampling sites. *Id.* at 28, 30, 33–34. The Cities performed E. coli tests on their samples, and those test results demonstrate that E. coli levels in both outfalls and receiving waters within Stevens Creek, Calabazas Creek, and the Sunnyvale East Channel were consistently above the limits set in the current water quality objectives: 100 CFU/100 mL for geometric mean and 320 CFU/100 mL for STV. The Cities' E. coli results are summarized in the table below. *See id.* at 31–32, 35.

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Water	Type of Sample	Total Number of Samples[13]	Samples Where E. coli > 100 CFU/100 mL	Samples Where E. coli > 320 CFU/100 mL
Stevens Creek	Outfall	88	64	52
	Receiving Water	44	38	20
Calabazas Creek	Outfall	46	32	28
	Receiving Water	36	32	25
Sunnyvale East Channel	—[14]	21	21	18

56. In addition to testing for E. coli, the Cities also tested for HF183 in an effort to identify the source of bacterial pollution. HF183 is a biomarker that is highly specific to human fecal matter, so its presence suggests a human source of bacteria. Trial Tr. at 172:15–16, 293:25–294:3, 405:5–9. There is no formal water quality objective for HF183, but concentrations above 525 gene copies (gc)/100 mL are considered concerning. Ex. 11 at 17–18. The Cities' HF183 results are summarized below. *See id.* at 31–32, 35.

Water	Type of Sample	Total Number of Samples[15]	Samples Where HF183 > 525 gc/100 mL
Stevens Creek	Outfall	92	37
	Receiving Water	44	13
Calabazas Creek	Outfall	52	23
	Receiving Water	36	11
Sunnyvale East Channel	—	21	13

[13] This number includes only samples for which a numerical E. coli result is reported in the Cities' testing results. It does not include instances where a site was too dry to sample (reported as "Dry"), where a site was inaccessible (reported as "IA"), where the Cities did not attempt to take a sample (reported as "NS"), or when a sampling event did not occur (reported with two hyphens).

[14] There is no differentiation between outfalls and receiving waters for the Sunnyvale East Channel because the entire East Channel is a stormwater conveyance system. Trial Tr. at 107:13–14.

[15] The Court uses the same criteria as it did in the table describing the Cities' E. coli results. *See supra* note 13. However, some of the sampling numbers differ slightly because, on occasion, the Cities did not sample a site for E. coli testing even though they did sample the site for HF183 testing. *See* Ex. 11 at 31–32.

57. Finally, the Cities recorded whether their samples were collected in wet weather or dry weather. *Id.* at 31–32, 35. Under normal circumstances, there should be no flow from outfalls during dry weather (and thus no way to collect water samples), because outfalls are designed to convey stormwater and there is no stormwater in dry weather. *See* Trial Tr. 402:15–19. So, if the Cities were able to collect outfall samples during dry weather, that is a strong indication that there was a non-stormwater source of flow to that outfall on that day. *Id.*

58. The Cities were regularly able to collect samples from the Sunnyvale East Channel in both dry and wet weather. Ex. 11 at 31, 35. The Cities were able to collect outfall samples during 46 of 62 dry weather sampling events in Calabazas Creek.[16] *Id.* at 31. The Cities were able to collect outfall samples during 68 of 163 sampling events in Stevens Creek. *Id.* at 31–32.

59. Considering both the frequency of dry weather flows and the frequency with which HF183 was detected at concerning levels in the Cities' outfalls, the Court concludes that there is a non-stormwater, human source of bacterial pollution contributing to flows from those outfalls. And since HF183 was also detected at concerning levels within Calabazas Creek, Stevens Creek, and the Sunnyvale East Channel themselves, the Court additionally finds that the flows out of the Cities' outfalls are at least one source of the HF183 observed in the receiving waters and thus a source of the bacterial pollution observed in those waters as well.

60. In addition, the Court finds that the pollution observed in Calabazas Creek and Stevens Creek rises to the level of water quality violations. Although the Cities collected samples monthly—so they did not collect the multiple samples in a four-to-six-week period needed for direct proof of a water quality violation, *see* Ex. 1065 at 20—the Cities' sampling shows that E. coli levels consistently exceeded the current limits for geometric mean. Moreover, the exceedances were often well over the limit. *See* Ex. 11 at 35; Ex. 1146 at 349. Given the consistency and magnitude of these E. coli exceedances, the Court infers that E. coli levels were regularly above limits, even on days when the Cities did not collect samples. That inference

[16] In this paragraph, "sampling events" means every time the Cities attempted to collect either a sample for E. coli testing or HF183 testing, excluding times when the Cities did not attempt to collect any sample at all (those reported as "IA" or with two hyphens in the Cities' testing results).

extends to the present day, as the record does not suggest that the Cities have changed their MS4 management practices in any meaningful way from when they started their testing in July 2022 through now.

61. The Court therefore concludes that, based on the Cities' testing, there are current violations of the E. coli geometric mean objectives in Stevens and Calabazas Creeks beginning at least by October 2023, the month in which the Cities started collecting samples from those waters.

62. Moreover, when adding Baykeeper's 2019 testing to the mix, the Court finds that these violations extend back to January 2019. Earlier, the Court found that Baykeeper's testing in Stevens Creek and Calabazas Creek established violations of the E. coli geometric mean objectives in January and February 2019. *Supra* Section I.B.2. Although the Cities subsequently took steps to remediate those violations, the Cities' most recent testing shows that water quality violations nonetheless persisted. Since the Cities' remediation efforts were ineffective, the Court concludes that violations existed the entire period from January 2019 to present within the two Creeks.

63. Again though, Baykeeper has not proven any current violations in the Sunnyvale East Channel because the REC-1 objectives do not apply, and Baykeeper has not pointed to violations of any other objectives. *See* Trial Tr. at 214:25–215:9.

64. Baykeeper also has not proven that there are current water quality violations in either Guadalupe Slough or the South San Francisco Bay. Both the Slough and Bay are marine waters subject to Enterococcus objectives, *id.* at 157:10–14, yet the Cities did not perform any Enterococcus testing, only E. coli testing. *See* Ex. 31–32, 35.

65. The only Enterococcus testing in the record comes from Baykeeper's sampling in Stevens Creek, Calabazas Creek, and the Sunnyvale East Channel. *See* Exs. 14–22; Ex. 12 at 3. But the latest of that sampling came in April 2022, over three years ago. Ex. 12 at 3. Such stale tests do not demonstrate current water quality violations. Even if the age of Baykeeper's testing were not a problem, the fact that none of that testing occurred in the Slough or Bay would still be an issue. As the Court found above, testing in the two Creeks and East Channel does not support inferences of water quality violations in the Slough or Bay. *See supra* Section I.B.2.

D. Sanitary Sewers and Exfiltration

66. Baykeeper's primary theory for the source of bacterial pollution being discharged from the Cities' MS4s is exfiltration, which occurs when raw sewage seeps from a sanitary pipe into a stormwater pipe through defects such as cracks, holes, or loose joints. Trial Tr. at 400:9–15, 408:17–22. Exfiltration has been observed in practice. *Id.* at 400:16–401:12. But generally speaking, it is "exceptionally rare." *Id.* at 1491:1–3.

67. For exfiltration to occur, several criteria must be met. First and most obviously, there must be defects in the sanitary and stormwater pipes that allow sewage to exit and enter those pipes. *Id.* at 406:8–17. Second, because sewage does not fill the entire sanitary pipe—the sewage flows along the bottom of the pipe while there is air above the sewage—only defects below the flow line of a sanitary pipe can lead to exfiltration. *See id.* at 406:9–12, 781:20–23. Third, the stormwater pipe must be below the sanitary pipe in elevation so that gravity can pull the sewage down from the sanitary pipe into the stormwater pipe. *Id.* at 406:8–9. And finally, the soil surrounding the defects must be permeable enough to allow sewage to flow. *Id.* at 406:13–14.

68. As discussed in further detail below, the Court finds Baykeeper has not established that exfiltration is a material source of the bacterial pollution in the Cities' MS4 discharges.

1. Sunnyvale

69. Baykeeper's expert, Mr. Draganchuk, conducted what he referred to as a "high risk pipe analysis" in order to determine whether significant amounts of exfiltration were occurring in Sunnyvale's sewer systems. *Id.* at 460:17. He identified sanitary pipes as high risk based on the following factors: (a) the pipe was installed prior to 1960; (b) the pipe was made of vitrified clay; (c) the sanitary pipe was located above the stormwater pipe; (d) the sanitary pipe was within one meter radially of the stormwater pipe; and (e) the pipe was had a Pipeline Assessment Certification Program (PACP) score of 4 or 5.[17] *Id.* at 461:14–21. Mr. Draganchuk also considered the type of soil surrounding the pipes. *Id.* at 454:17–19.

[17] The PACP score refers to an industry standard for grading the structural condition of sewer pipes. Trial Tr. at 397:23–398:4. The PACP scale runs from 1 to 5 with scores of 5 indicating the worst structural defects. *Id.* at 398:3–4, 466:20–23.

70. These high risk factors map onto the criteria for exfiltration to occur. PACP scores are, of course, a direct indication that defects exist. The age of the pipe and the material (vitrified clay) serve as proxies for the existence of major structural defects when PACP scores are unavailable. *Id.* at 468:6–16. The older a pipe is, the more likely that it suffers from structural defects. *Id.* at 465:10–16. And that fact that a pipe is made of vitrified clay is important because that material is rigid and more likely to develop structural defects. *Id.* at 462:3–14. The locations of the pipes—both radial distance and elevation—as well as soil composition are exactly criteria necessary for exfiltration. *Id.* at 406:8–9, 406:13–14.

71. In performing his analysis, Mr. Draganchuk did not have complete data. While he had all relevant location data from Sunnyvale's GIS database, *id.* at 461:7–9, 461:22–24, and all relevant soil data from the U.S. Department of Agriculture, *id.* at 457:19–23, he was missing data on PACP scores, pipe material, and age. Mr. Draganchuk lacked PACP scores for 78% of Sunnyvale's pipes, which forced him to use age and pipe material as proxies. *Id.* at 467:14–468:16, 471:20–22. But Mr. Draganchuk also lacked material data for 5% of Sunnyvale's pipes and age data for 47% of Sunnyvale's pipes. *Id.* at 464:15–18, 465:19–22. So, based on his experience, Mr. Draganchuk assumed that the pipes for which he lacked data were made of vitrified clay and installed earlier than 1960. *Id.* at 464:19–465:7, 465:23–466:1.

72. Out of the sanitary pipes for which he had PACP scores, Mr. Draganchuk identified 18 pipes as high risk. *Id.* at 472:23–473:4. Those pipes are identified on the figure created by Mr. Draganchuk below:

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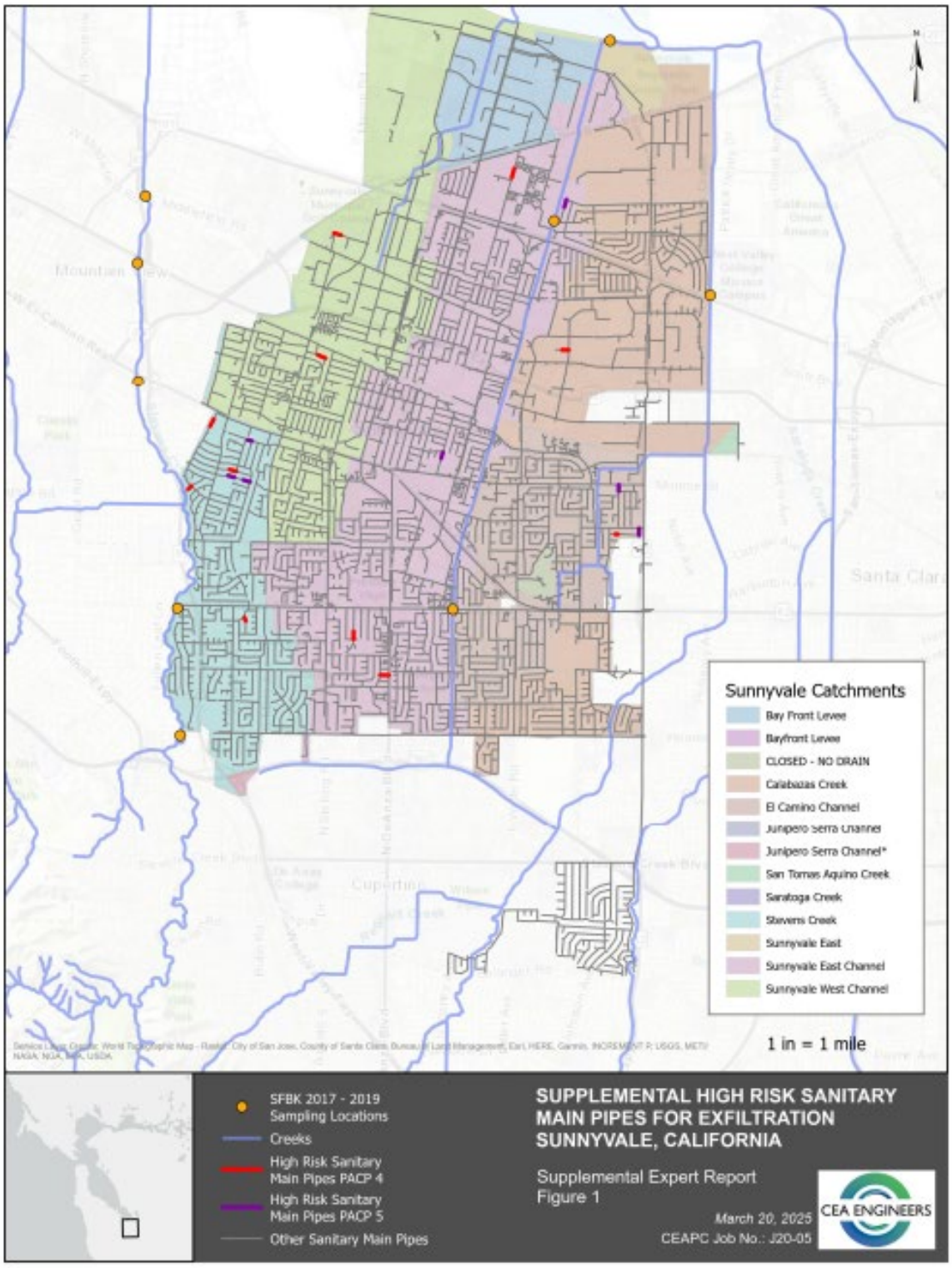

Ex. 72 at 13.

73. In addition to those 18 specific pipes, Mr. Draganchuk extrapolated that, when accounting for the pipes for which he did not have PACP scores, there would be 83 high risk pipes

in total within Sunnyvale's sanitary sewer system. Trial Tr. at 473:5–8. Relying on this analysis coupled with water testing results indicating a human source of bacteria, Mr. Draganchuk opined that it was "highly probable" that exfiltration was a source of bacterial pollution in Sunnyvale's MS4 discharges. *Id.* at 481:14–23.

74. However, real-world observations do not support Mr. Dragancuk's analysis. Sunnyvale investigated each of the 18 specific sites that Mr. Draganchuk identified as high risk. *Id.* at 848:5–15. Of those, 12 sites had sanitary pipes were below the stormwater pipes, meaning exfiltration was impossible. *Id.* at 848:16–21. And for those remaining sites where the sanitary pipe was above the stormwater pipe, Sunnyvale conducted CCTV investigations—meaning that it ran a camera into the pipes for inspection—and found no evidence of any exfiltration. *Id.* at 770:19–771:8, 848:22–849:6.

75. As for the remainder of Sunnyvale's sanitary sewer system for which Mr. Draganchuk did not have PACP scores, the evidence shows those portions of the system are unlikely to account for the bacteria in Sunnyvale's MS4 discharges. Sunnyvale has an active maintenance program for its sanitary sewers, which includes flushing and cleaning approximately 400,000 feet of pipe each day as well as management of tree roots to prevent roots from causing damage. *Id.* at 768:25–769:10, 769:20–25, 777:25–778:16. It also maintains teams for responding to ad hoc reports of sewer backups and contracts for on-call emergency sewer line repair services. *Id.* at 769:12–13, 786:13–17. And specifically with respect to addressing defects within sewer lines, Sunnyvale CCTV's 1,000 to 1,500 feet of line each day to look for defects, with the goal of CCTV'ing its entire sanitary sewer system every ten years. *Id.* at 770:10–13, 778:17–22. Sunnyvale is also in the process of replacing nearly 12,000 feet of sanitary sewer pipe and will begin work on another 11,000 feet once that work is complete. *Id.* at 786:18–23.

76. Given that Mr. Draganchuk's high risk pipe analysis relied so heavily on incomplete data and assumptions, and that they could not be verified through real-world observations, the Court gives the analysis—and Mr. Draganchuk's opinions based on that analysis—little weight. Instead, the Court places significant weight on the fact that actual monitoring of Sunnyvale's sewer systems did not reveal any significant level of exfiltration.

Considering those real-world observations with Sunnyvale's other efforts to maintain its sanitary sewer system, the Court finds it is unlikely that exfiltration contributes materially to the bacteria levels found in Sunnyvale's MS4 discharges. Although high HF183 levels indicate that there is some human source of bacteria, *supra* Finding of Fact 59, Baykeeper has not demonstrated that exfiltration is such a source.

2. Mountain View

77. As he did for Sunnyvale, Mr. Draganchuk performed a high risk pipe analysis for Mountain View. Trial Tr. at 474:19–21. But while he tried to use the same categories of data, Mr. Draganchuk faced far greater data gaps for Mountain View than he did for Sunnyvale. *Id.* at 474:24–475:5. Most significantly, Mountain View did not have GIS data about pipe elevation, so Mr. Draganchuk could not identify sites where the sanitary pipe was positioned above the stormwater pipe as necessary for exfiltration to occur. *Id.* at 475:11–20. Mr. Draganchuk was also forced to disregard pipe age because Mountain View lacked such data for over 97% of its pipes. *Id.* at 475:21–23.

78. In other ways, though, Mountain View's data were comparable or even more complete than Sunnyvale's data. Mountain View's pipe material data were about as complete as Sunnyvale's data: pipe material data was missing for only 3% of pipes. *Id.* at 475:24–476:3. Like for Sunnyvale, Mr. Draganchuk assumed that the pipes on which he had no material data were made of vitrified clay. *Id.* at 476:4–10. And Mountain View actually had more PACP data than Sunnyvale did, providing data for 76% of pipes. *Id.* at 478:21–23.

79. Based on these data, Mr. Draganchuk identified 341 specific pipes that were at a high risk for exfiltration. *Id.* at 479:15–20. Extrapolating out to account for pipes that lacked PACP scores, Mr. Draganchuk estimated there would be 446 total high risk pipes. *Id.* The 341 specific pipes are identified on the figure created by Mr. Draganchuk below:

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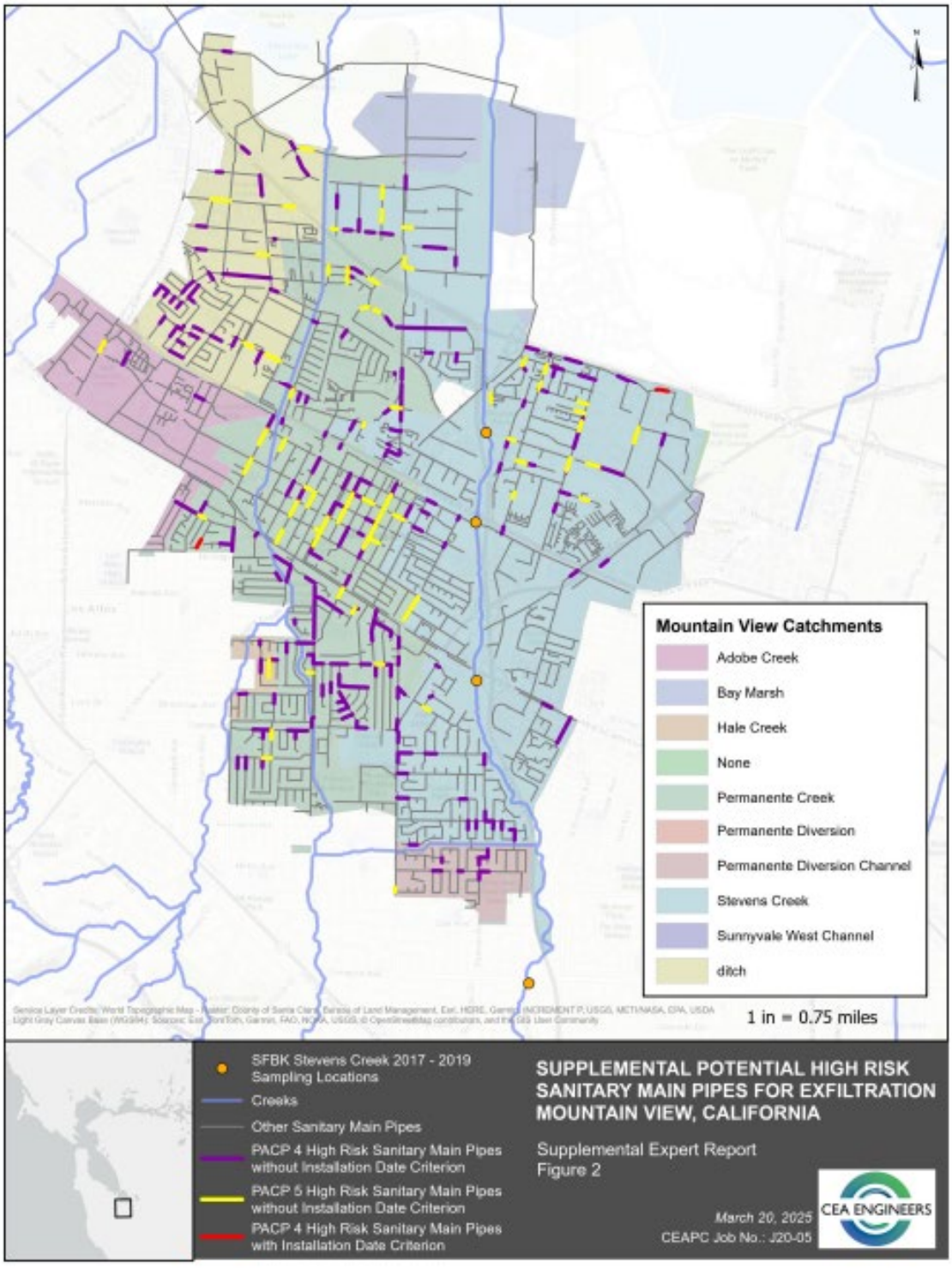

Ex. 72 at 14.

80. Like his Sunnyvale analysis, Mr. Draganchuk's Mountain View analysis does not hold up under real-world observations. When Mountain View first received Mr. Draganchuk's analysis in 2021, it spot-checked 40 of the specifically identified high risk pipes but found that

none of them actually met the criteria for high risk. Trial Tr. at 975:16–977:16. Then when Mr. Draganchuk updated his analysis in 2025, Mountain View checked 32 specifically identified pipes (which may have overlapped with some of the 40 checked in 2021) and again found that none of them met the criteria for high risk. *Id.* at 988:11–990:17.

81. Mountain View also maintains its sanitary sewer system in a way comparable to Sunnyvale. *Id.* at 945:8–13. Mountain View's maintenance plan calls for flushing every line within its sanitary sewers over the course of every three years, although currently Mountain View is on pace to complete a full flushing every two years. *Id.* at 954:11–955:5. Further, Mountain View CCTV's its entire sanitary sewer system on eight-year cycles. *Id.* at 956:9–957:16. When it identifies a high priority or emergency defect, it either sends its own team or a contractor to repair that defect immediately. *Id.* at 967:3–12, 969:16–19. Notably, over the course of that regular CCTV'ing, exfiltration has never been observed in Mountain View's systems. *Id.* at 944:6–12.

82. Ultimately, the Court gives little weight to Mr. Draganchuk's high risk pipe analysis and opinions since it was based on incomplete data and based on assumptions inconsistent with the real world. *See id.* at 972:11–974:17. Rather, the Court relies on the evidence of real-world observations to find that it is unlikely exfiltration contributes materially to the bacteria levels found in Mountain View's MS4 discharges. Again, high HF183 levels indicate that there is some human source of bacteria, *supra* Finding of Fact 59, but Baykeeper has not demonstrated that exfiltration is such a source.

II. CONCLUSIONS OF LAW

A. Jurisdiction

1. Article III Standing

The Court previously held at summary judgment that Baykeeper had established the standing needed to bring this case. ECF No. 139 at 9–17. Later, the Court reiterated that it had already resolved standing on summary judgment—Baykeeper had established its standing with respect to Stevens Creek, Calabazas Creek, and the South San Francisco Bay but not with respect to the Sunnyvale East Channel or Guadalupe Slough—so standing would not be a live issue for trial. ECF No. 270 at 2–3 & n.2. And for good measure, the Court said so again when ruling on

the parties' motions in limine. ECF No. 349 at 19–21. The Court reserved only a single standing-related issue for resolution following trial: "whether Baykeeper's standing in [Stevens Creek, Calabazas Creek, and the South San Francisco Bay] allows it to assert liability for violations in the East Channel and Slough." *Id.* at 3. Nonetheless, because standing is a jurisdictional matter that can never be waived, in addition to now addressing the reserved argument, the Court considers the Cities' standing arguments for a fourth time. *See Va. House of Delegates v. Bethune-Hill*, 587 U.S. 658, 662–63 (2019).

Article III standing requires injury, traceability, and redressability.[18] *Friends of the Earth, Inc. v. Laidlaw Env't Servs. (TOC), Inc.*, 528 U.S. 167, 180–81 (2000). The Cities' standing argument revolves around injury; they claim that Baykeeper lacks standing because Baykeeper has failed to prove there were any water quality exceedances that could have injured its members. As the Court has now found, though, Baykeeper has proven water quality exceedances and that the Cities contributed to those exceedances. *Supra* Sections I.B.2, I.C.3. That suffices to establish injury for standing purposes.

That leaves just the reserved argument. On this point, the Court concludes that standing poses no obstacle to its consideration of evidence regarding the Sunnyvale East Channel or Guadalupe Slough. Standing is necessary for a plaintiff to assert a claim and seek a remedy. *DaimlerChrysler Corp. v. Cuno*, 547 U.S. 332, 352–53 (2006). In this case, Baykeeper's standing with respect to Stevens Creek, Calabazas Creek, and the South San Francisco Bay enable it to bring its claims (violation of the applicable NPDES permits) and seek its remedies (civil penalties and a permanent injunction). That conclusion confirms the Court's power to hear this case. And once the Court has power to hear this case, it need not consider whether there are *other* sources of standing as well. *Cf. Cal. Trucking Ass'n v. Bonta*, 996 F.3d 644, 653 n.7 (9th Cir. 2021) ("So long as standing can be shown for one plaintiff, we need not consider the standing of the other

[18] Baykeeper invoked associational standing which, in effect, allows it to assert the injuries of its members when certain conditions are met. *See Hunt v. Wash. State Apple Advert. Comm'n*, 432 U.S. 333, 343 (1977). The Court does not further discuss those conditions because it previously addressed them, and the Cities do not challenge those conditions here.

plaintiffs."). Put another way, once Baykeeper has established standing, Article III does not serve as an evidentiary bar that prevents the Court from considering broader evidence of effects that extend beyond Baykeeper's immediate injury when deciding how to exercise its remedial discretion.

The Court therefore declines to disturb its previous conclusion that Baykeeper has established standing, and it further concludes that it may consider evidence of violations in the East Channel and Slough when determining the appropriate remedy.

2. Mootness

In addition to arguing that Baykeeper did not have Article III standing at the outset, the Cities suggest that this case became moot when the 2022 Permit came into effect. To establish mootness in this context, the Cities needed to show not just that there was no more continuing violation under the 2022 Permit, but also that it is "absolutely clear that the allegedly wrongful behavior could not reasonably be expected to recur" if the case is dismissed as moot. *Friends of the Earth*, 528 U.S. at 170. The Cities bear a "heavy burden" to do so. *Conservation Cong. v. U.S. Forest Serv.*, 720 F.3d 1048, 1053 (9th Cir. 2013) (citation omitted).

Just as with standing, the Court has previously addressed mootness. On a motion to dismiss, the Court held the Cities had not met their burden to show it is absolutely clear that violations would not recur. ECF No. 194 at 7–9. Also like the standing issue, "[m]ootness is jurisdictional," so the Court addresses it again nonetheless. *Tur v. YouTube, Inc.*, 562 F.3d 1212, 1214 (9th Cir. 2009). Still, nothing has changed. While the Cities theoretically have access to more evidence following trial, the most they do is allude to the prospect of mootness in their post-trial briefing. They make no meaningful argument about recurrence and therefore fail to carry their burden. This case is not moot.

3. Clean Water Act Notice

The Cities' final jurisdictional argument is that Baykeeper failed to provide sufficient notice of claims. This jurisdictional requirement is statutory rather than constitutional: the Clean Water Act requires citizen-suit plaintiffs to provide 60-day notice of intent to sue. *Cottonwood Env't L. Ctr. v. Edwards*, 86 F.4th 1255, 1264 (9th Cir. 2023). That notice must "tell[] a target

precisely what it allegedly did wrong, and when," and it must do so with "reasonable specificity." *Id.* (citations omitted). There is no dispute that Baykeeper provided timely notice. *See* Exs. 1049–50. The only question is whether the substance of those notices was sufficient.

At issue here is whether the Court has jurisdiction to consider theories about the source of bacterial pollution other than exfiltration. Baykeeper's notice letters identified "exfiltration or other means" as the source of pollution. Ex. 1049 at 9; Ex. 1050 at 8. That clearly and specifically identifies exfiltration as a possible source, but "other means" does not identify any other source with sufficient specificity. So, if the source of pollution must be identified in a notice letter, the Cities are correct that the Court lacks jurisdiction to consider any sources beyond exfiltration.

However, the Court concludes that Baykeeper did not need to identify the source of alleged pollution in its notice letters. Discharge Prohibition A.1 and Receiving Water Limitation B.2 regulate only what is discharged out of the Cities' MS4s. The Cities violate those provisions if they discharge bacterial pollution at high levels regardless of where that bacterial pollution originates from. Put differently, the source of pollution is irrelevant to any finding of a violation (although source is relevant to remedy). Moreover, the Clean Water Act's notice requirement was not intended to "plac[e] an undue burden on the citizen" plaintiff, and most citizen plaintiffs will not have the access needed to investigate and definitively identify the source of pollutants prior to litigation. *Pub. Int. Rsch. Grp. of N.J., Inc. v. Hercules, Inc.*, 50 F.3d 1239, 1246 (3d Cir. 1995). For these reasons, the Court rejects the Cities' notice argument.

B. Permit Violations

1. Threshold Defenses

Before turning to the primary issue in this case—whether the Cities have violated the NPDES permits at issue—the Court first addresses two threshold defenses: the bar on collateral attacks and judicial estoppel.

a. Collateral Attack

Collateral attacks on the validity of an NPDES permit are not allowed "in the course of an enforcement action or citizen suit, whether those attacks arise offensively or defensively." *Puget*

Soundkeeper All. v. Port of Tacoma, 104 F.4th 95, 105 (9th Cir. 2024). According to the Cities, Baykeeper is violating this prohibition by seeking to add new provisions to the 2015 and 2022 Permits—provisions that Baykeeper previously but unsuccessfully advocated for in front of the state water boards responsible for issuing those Permits. That is not what is happening here. Baykeeper is simply making arguments about how the Permits should be interpreted, and those interpretive arguments happen to align with Baykeeper's long-held policy positions. That is wholly unsurprising given Baykeeper's role as an advocate. Interpretation advocacy is not a collateral attack whether it is driven by advocacy or not. As such, the collateral attack bar does not defeat Baykeeper's suit.

b. Judicial Estoppel

In a variation on their collateral attack defense, the Cities claim that judicial estoppel prevents Baykeeper from asserting its current interpretations of the 2015 and 2022 Permits. The Cities believe that Baykeeper's unsuccessful push for the state water boards to add certain provisions to NPDES permits means that Baykeeper is not allowed to interpret the Permits in ways that align with those rejected provisions. But that argument is a poor fit for judicial estoppel. The doctrine of judicial estoppel applies only where a prior tribunal has "accepted" a party's position. *Hamilton v. State Farm Fire & Cas. Co.*, 270 F.3d 778, 783 (9th Cir. 2001). The opposite happened here. As the Cities acknowledge, Baykeeper was *unsuccessful* in convincing the state water boards to adopt its proposed NPDES provisions. ECF No. 409 at 25. Thus, judicial estoppel does not apply.

2. Discharge Prohibition A.1

a. Interpretation and Application

Prohibition A.1 requires the Cities to "effectively prohibit the discharge of non-stormwater (materials other than stormwater) into storm drain systems and watercourses." Ex. 1 at 8; Ex. 2 at 9. When interpreting Prohibition A.1, the Court treats it "like any other contract [provision]." *Nat. Res. Def. Council, Inc. v. Cnty. of L.A.*, 725 F.3d 1194, 1204 (9th Cir. 2013) ("*L.A. I*"). If the language is clear and unambiguous, "the language alone must determine the [provision]'s meaning." *Id.* at 1205. (citation omitted). But if there is ambiguity, the Court may consider

extrinsic evidence. *Id.*

The Court finds Prohibition A.1 to be ambiguous. In particular, it is not clear from the plain text how the word "effectively" modifies "prohibit." On one hand, "effectively" can mean "in an effective manner," which would require perfect prohibition. *See Effectively*, Merriam-Webster.com, https://www.merriam-webster.com/dictionary/effectively (last visited Mar. 30, 2026). On the other, "effectively" can mean "in effect" or "virtually," which suggests that the Cities would only need to get close to an absolute prohibition and would thus have some leeway. *See id.*

The intrinsic context of the Permits supports the latter interpretation. Both the 2015 and 2022 Permits include findings that recognize the Cities do not have complete control over all pollutants that might enter their MS4s. Ex. 1 at 7; Ex. 2 at 7. For that reason, it was not the Permits' purpose to hold the Cities responsible for every single bit of pollution that exited their MS4s. Ex. 1 at 7; Ex. 2 at 7. Rather, as testimony at the Regional Water Board hearing on the 2022 Permit illustrates, the purpose of Prohibition A.1 was to ensure that the Cities were taking reasonable steps to prevent the discharge of non-stormwater. At the hearing, Regional Water Board staff explained:

> [T]he concept of effectively prohibit, and I'll speak this to the record, is understood that it –because it doesn't make sense to actually say you have to have – if somebody dumps something in your storm drain, you are automatically noncompliant. So, the point about effectively prohibit is that you have legal authority, and you do surveillance, monitoring, response to complaints, you seek these dischargers out and you get them fixed including in taking enforcement as needed.
>
> So, the provision that is referred to in the permit on [i]licit discharges does call that out. They have to have legal authority, they have to have an enforcement response program, they have to be responsive to complaints, and actually do surveillance. But it doesn't say just because they have that program doesn't mean they're automatically in compliance. It's a matter of making sure it's implemented successfully to make sure all – you know, things within their control are happening.

Ex. 1074 at 300:25–301:21.

Taking that hearing testimony together with the context of the Permits and the possible dictionary definitions of "effectively prohibit," the Court concludes that Prohibition A.1 has two

components. First, it requires the Cities to take reasonable steps to prevent the discharge of non-stormwater. Per the hearing testimony, that includes ensuring that there are appropriate ordinances and enforcement programs in place. But that is not sufficient on its own because those ordinance and programs must be "implemented successfully." Ex. 1074 at 301:19. As such, the second component of "effectively prohibit" requires the Cities to at least come close to avoiding water quality violations. This gives the Cities some leeway by not requiring total prohibition while staying true to the second dictionary definition (discussed above) by requiring that the prohibition be "virtually" total.

Applying this definition, the Court concludes that the Cities have violated Prohibition A.1. The Cities probably satisfy the first component of the Prohibition, but they clearly fail the second. Per the Court's findings of fact, the Cities have implemented extensive enforcement and related programs to protect against discharges of non-stormwater from their MS4s. *See supra* Sections I.C–D. The Cities also have ordinances designed to achieve that goal. Exs. 1081, 1086. The problem is that those programs have been far from successful. In fact, they are not even close since bacterial concentrations in both outfalls and receiving waters have been consistently and significantly elevated above water quality objectives. *Supra* Sections I.B.2, I.C.3.

That just leaves the question of *when* the Cities violated Prohibition A.1. Baykeeper maintains that violations of Prohibition A.1 are continuous, so they accrue daily. ECF No. 411 at 25. In making that argument, Baykeeper casts Prohibition A.1 as a prohibition on non-stormwater entering the Cities' MS4s. The Cities object that not all non-stormwater that enters an MS4 ends up discharged into a surface water. ECF No. 414 at 16. On this point, Baykeeper has the better argument. Prohibition A.1 regulates not just "the discharge of non-stormwater . . . into . . . watercourses" but also discharges "into storm drain systems." Ex. 1 at 8; Ex. 2 at 9. Storm drain systems are precisely MS4s, so the prohibition on non-stormwater entering such systems is a prohibition on non-stormwater entering MS4s in the first place. Since Baykeeper has offered evidence from which the Court was able to infer there were consistently elevated levels of bacteria in the Cities' outfalls (and thus in the Cities' MS4s), the Court concludes that the Prohibition A.1 violations are daily ones.

Finally, the Court concludes that these violations occurred from January 17, 2019 (the date of the first water quality test that the Court relied on to find water quality violations) to present. Baykeeper encourages the Court to find violations further back, to January 1, 2016. But Baykeeper has not substantiated violations extending that far back. There are only two days of water quality testing from before January 17, 2019, from the water samples Baykeeper collected on November 16, 2017 and March 1, 2018.[19] That testing does not support an inference that violations extend as far back as 2016 because it is too sparse: the Court cannot be sure whether the November 2017 and March 2018 tests are outliers or representative of a trend. This is unlike the situation with the Cities' testing from 2022 to 2024, which was frequent enough to demonstrate a trend over time.

The Court concludes that the Cities violated Prohibition A.1 daily from January 17, 2019 to present.

b. Alternative Pathways

The Cities insist that, even if they violated Prohibition A.1, they are not liable because they satisfied an alternative pathway to compliance contained in Provision C.1. Although the Court previously addressed the question of alternative pathways in Provision C.1, the Court did so at the pleading stage and without the benefit of extrinsic evidence. Having now "had the benefit of hearing testimony and a full presentation of the evidence," including extrinsic evidence on the meaning of Provision C.1, the Court revisits anew the issue of alternative pathways to compliance. *Gray v. Hudson*, 28 F.4th 87, 102 (9th Cir. 2022).

When it comes to determining whether Provision C.1 provides an alternative pathway, one issue is whether Provision C.1 implements an iterative process. An iterative process is an open-ended approach to addressing permit violations in which the permittee submits a report detailing additional steps it will take to resolve violations. *Nat. Res. Def. Council, Inc. v. Cnty. of L.A.*, 673 F.3d 880, 888 (9th Cir. 2011) ("*L.A. II*"), *rev'd on other grounds sub nom. L.A. Cnty. Flood*

[19] The test results from March 22, 2018 are unreliable, so the Court does not consider them. *Supra* note 10.

Control Dist. v. Nat. Res. Def. Council, Inc., 568 U.S. 78 (2013). If the new measures identified in the first report fail to resolve the violation, this process repeats—iterates—and the permittee submits a new report that identifies further steps. Various courts have held that the iterative process does not excuse compliance with other permit provisions. *E.g.*, *id.* at 897–98. The State Water Board has adopted that rule, issuing an order directing that regional water boards, when issuing NPDES permits, "should not deem good faith engagement in the iterative process to constitute such compliance" with applicable water quality standards. Ex. 1 at 185; Ex. 2 at 356. That order has been incorporated into both the 2015 and 2022 Permits, so it is clear that any provision creating an iterative process cannot serve as an alternative pathway to compliance. *See* Ex. 1 at 185; Ex. 2 at 356. Provisions C.1.a–b are precisely the type of iterative process that *L.A. II* addressed, so those provisions cannot constitute alternative pathways. *Compare* Ex. 1 at 9, *and* Ex. 2 at 11–12, *with L.A. II*, 673 F.3d at 888.

The trickier issue is whether the main body of Provision C.1 provides an alternative pathway to compliance. Recall that Provision C.1 of the 2015 Permit reads in relevant part as follows, with sentences numbered in brackets:

> [1] The Permittees shall comply with Discharge Prohibitions A.1 and A.2 and Receiving Water Limitations B.1 and B.2 through the timely implementation of control measures and other actions as specified in Provisions C.2 through C.16.5. [2] Compliance with Provisions C.9 through C.12, C.14, and C.16.5 of this Order . . . shall constitute compliance during the term of this Order with Receiving Water Limitations B.1 and B.2 for the pollutants and the receiving waters identified in the provisions. [3] Compliance with Provisions C.10 and C.16.5 . . . shall also constitute compliance with Discharge Prohibitions A.1 and A.2 during the term of this Order for discharges of trash.

Ex. 1 at 9. The 2022 Permit is identical except that: Sentence 1 requires compliance with Provisions C.2 through C.24; Sentence 2 identifies compliance with Provisions C.9 through C.12, C.14, C.18, and C.19.c-f as constituting compliance with Limitations B.1 and B.2; and Sentence 3 identifies compliance with Provision C.10 alone as constituting compliance with Prohibitions A.1 and A.2. Ex. 2 at 11. Interpreting Provision C.1 is challenging because Sentence 1 appears to render both Sentences 2 and 3 superfluous—the provisions discussed in Sentences 2 and 3 are just a subset of the provisions in Sentence 1. If Sentence 1 created an alternative pathway to

compliance, there would be no need for Sentences 2 or 3.

Contract principles can untangle this dilemma. *See L.A. I*, 725 F.3d at 1204 (courts interpret NPDES permits like contracts). "[W]hen provisions are inconsistent" in a contract, "specific terms control over general ones." *S. Cal. Gas Co. v. City of Santa Ana*, 336 F.3d 885, 891 (9th Cir. 2003) (citing Cal. Code Civ. Proc. § 1859). Here, Sentence 1 is inconsistent with Sentence 3 when it comes to establishing alternative pathways for compliance with Prohibition A.1. In the 2015 Permit, Sentence 1 suggests that compliance with all of Provisions C.2 through C.16.5 is necessary for to satisfy Prohibition A.1 while Sentence 3 suggests that compliance with Provisions C.10 and C.16.5 alone can be enough. Ex. 1 at 9. Since the sentences conflict, the more specific one controls. Here, the more specific one is Sentence 3, since it is limited to the A Provisions while Sentence 1 discusses how to comply with both the A Provisions and B Provisions.

Extrinsic evidence also helps. As a Regional Water Board employee testified, the purpose of requiring compliance with Provisions C.2 through C.16.5 in the 2015 Permit (C.2 through C.24 in the 2022 Permit) was aspirational. Trial Tr. at 1319:11–1321:13. The Regional Water Board expected that compliance with the C Provisions as a whole would result in permittees coming into compliance with the A Provisions and B Provisions. This suggests that Sentence 1 does not provide an alternative pathway to compliance; instead it is a general statement of expectation that complying with Provisions C.2 through C.16.5 (or C.2 through C.24) would lead to desirable results. Accordingly, the Court concludes that Sentence 1 requires compliance with the C Provisions but does not establish an alternative pathway to compliance with the A and B Provisions. Rather Sentence 1 indicates that compliance with the C Provisions is expected to result in compliance with the A and B Provisions, not that compliance with the C Provisions excuses noncompliance with the A and B Provisions. It is Sentence 3 that creates an alternative pathway to compliance with Prohibition A.1—compliance with Provisions C.10 and C.16.5 for the 2015 Permit (and with Provision C.10 alone for the 2022 Permit) excuses compliance with Prohibition A.1.

Under that interpretation, the Cities have not satisfied an alternative pathway to compliance. Sentence 3 allows for alternative compliance only when it comes to "discharges of trash," not to the discharges of bacteria at issue in this case. Ex. 1 at 9; Ex. 2 at 11. So, the Court's conclusion that the Cities violated Prohibition A.1 stands.

3. Receiving Water Limitation B.2

a. Interpretation and Application

Unlike Prohibition A.1, Limitation B.2—which bars discharges that "cause or contribute to a violation of any applicable water quality standard"—is unambiguous. Ex. 1 at 8; Ex. 2 at 9. Indeed, the parties agree that when a discharge coming from an outfall exceeds water quality objectives, and the waters receiving the discharge also exceed water quality objectives, that discharge has contributed to a water quality exceedance in violation of Limitation B.2. Trial Tr. at 1621:19–1622:2, 1676:19–20. The Court found above that this is exactly what happened,[20] so the Court concludes that the Cities have violated Limitation B.2. *See supra* Sections I.B.2, I.C.3.

For the same reasons as it did when analyzing Prohibition A.1, the Court concludes that the earliest point at which a violation occurred is January 17, 2019, and that violations continue to the present day. Unlike Prohibition A.1, however, Limitation B.2 only prohibits discharges *out* of the Cities' MS4s. Thus, violations only occurred when there were discharges. The evidence shows that the Cities' MS4s discharge whenever there is at least 0.2 inches of rain within a day. Trial Tr. at 163:7–164:2. And given how both outfall and receiving water samples so consistently and significantly exceeded water quality standards, the Court infers that each of those discharges constituted a violation of Limitation B.2. In short, the Cities violated Limitation B.2 every time they experienced more than 0.2 inches of rain in a day during the period from January 17, 2019 to present.

b. Alternative Pathway

The Court's analysis of Provision C.1 above establishes that Sentence 2 creates the

[20] In fact, the Cities likely caused, not just contributed to, violations in Stevens Creek because there were no water quality exceedances at SC-10 before Stevens Creek flowed into the Cities.

relevant alternative pathways to compliance when it comes to Limitation B.2. *Supra* Section II.B.2.b. In turn, Sentence 2 creates alternative pathways only for the specific "pollutants and [] receiving waters identified in the provisions." Ex. 1 at 9; Ex. 2 at 11. Both the 2015 and 2022 Permits identify a bacteria-related provisions in Sentence 2. But in the 2015 Permit, that provision—Provision C.14—applied only to the City of Pacifica and to San Mateo County. Ex. 1 at 9, 128. As such, there was no alternative pathway to compliance available to the Cities under the 2015 Permit. In the 2022 Permit, though, Provision C.14 was revised to include the Cities, specifically Provision C.14.a. Ex. 2 at 11, 179.

As the Court found above, the Cities have complied with the requirements of C.14.a. *Supra* Sections I.C.1–2. Baykeeper largely does not contest this point. The only argument it musters against the Cities' compliance is that the Cities have failed to provide a workable plan moving forward as required by Provision C.14.a.ix. ECF No. 411 at 31. But the requirement to provide more detailed plans does not trigger until December 31, 2026, and even then only if the Cities determine that they are unable to come into compliance with Limitation B.2 by June 30, 2027. Ex. 2 at 185–86. The Cities' failure to report more detailed plans do not defeat alternative compliance under C.14.a, so the Court concludes that the Cities are not in violation of Limitation B.2 under the 2022 Permit because they satisfy the alternative path to compliance. So in the end, the Cities are liable only for violations of Limitation B.2 during the period from January 17, 2019 to June 30, 2022 (the day before the 2022 Permit went into effect).

C. Remedy[21]

1. Civil Penalties

The Clean Water Act authorizes civil penalties of $68,445 per day and per violation. 33 U.S.C. § 1319(d); 40 C.F.R. § 19.4. "If a district court finds a violation, then civil penalties under 33 U.S.C. § 1319(d) are mandatory." *NRDC v. Sw. Marine, Inc.*, 236 F.3d 985, 1001 (9th Cir. 2000). But the district court retains discretion to set the amount of the penalty up to the statutory

[21] The Court does not consider the Cities' bullet list of seven "infirmities" that bar relief because all are conclusory and undeveloped. *See* ECF No. 409 at 38–39.

maximum. *Id.* In calculating the appropriate penalty, courts "shall consider the seriousness of the violation or violations, the economic benefit (if any) resulting from the violation, any history of such violations, any good-faith efforts to comply with the applicable requirements, the economic impact of the penalty on the violator, and such other matters as justice may require." 33 U.S.C. § 1319(d).

In calculating the appropriate penalty, courts have usually taken either a "top-down" approach or a "bottom-up" approach. *Idaho Conservation League v. Atlanta Gold Corp.*, 879 F. Supp. 2d 1148, 1165 (D. Idaho 2012); *Coastal Env't Rts. Found. v. Aztec Perlite Co., Inc.*, No. 24-CV-385, 2024 WL 4520350, at *12 (S.D. Cal. Oct. 16, 2024). The top-down approach starts from the statutory maximum and then adjusts downwards based on the statutory factors. *Idaho Conservation League*, 879 F. Supp. 2d at 1165–66. The bottom-up approach begins from the economic benefit realized by the violator and then adjusts upwards or downwards based on the statutory factors. *Id.* at 1166.

In these circumstances, the Court finds the bottom-up approach to be the most appropriate. Just the Prohibition A.1 violations under the 2015 Permit (1,261 days spanning from January 17, 2019 to June 30, 2022) carry a maximum penalty of over $86 million for each City. This number is so high that it would not be useful as a starting point. *See* Ex. 100 at 6; Ex. 101 at 6; Trial Tr. at 677:4–678:8, 684:7–14 (Baykeeper's economic expert opining that Sunnyvale and Mountain View could afford to pay up to $40 million and $21 million in penalties, respectively). With that, the Court proceeds to calculate the appropriate penalty.

Economic Benefit. Because the Court takes the bottom-up approach, the starting point is economic benefit. On this front, Baykeeper offers testimony from an economic expert, Jonathan Shefftz. As Mr. Shefftz explained, the Cities could have gained an economic benefit from violating the NPDES permits in the form of avoiding or delaying the costs of compliance with the permits. Trial Tr. at 651:15–21. To determine the potential economic benefit, Mr. Shefftz in essence calculated the cost of on-time compliance and the cost of delayed compliance adjusted to present values; the difference represents the benefit to violators. *Id.* at 654:1–22.

The parties spar over Mr. Shefftz's methodology, but the Court finds that issues

surrounding Mr. Shefftz's inputs are dispositive. In calculating economic benefit, Mr. Shefftz considered three avoided costs: (1) GIS database and exfiltration investigation; (2) pipe rehabilitation; and (3) the cost of implementing best management practices (BMPs). Ex. 100 at 5; Ex. 101 at 5. The GIS and exfiltration investigation costs are no longer at issue, leaving just the reliability of the pipe rehabilitation and BMP costs in dispute. Trial Tr. at 678:14–16.

Mr. Shefftz relied on Mr. Draganchuk's estimates for the pipe rehabilitation costs. *Id.* at 672:11–15. But Mr. Draganchuk's rehabilitation cost estimates cover so wide a range as to be effectively a shot in the dark. Mr. Draganchuk explained that he only performed "order of magnitude" estimates that can be off by anywhere from -50% to 100%. Ex. 70 at 8. As such, he provided ranges so wide as to nearly be meaningless: $0–$7,392,000 for Sunnyvale and $0–$59,136,000 for Mountain View. *Id.*; Trial Tr. at 602:1–13. These estimates are not useful inputs. And in any case, the Court found that exfiltration is not a significant source of bacterial pollution, so pipe rehabilitation is not an avoided cost. *Supra* Section I.D. The Court disregards pipe rehabilitation costs as well.

Meanwhile, the BMP costs stem from Mr. Wren's analysis. Trial Tr. at 678:21. Mr. Wren estimated the cost of his remedy by reference to the cost of the management plan for a different watershed, Ballona Creek. *Id.* at 196:11–24, 211:15–21, 330:6–9. To do this, Mr. Wren simply scaled the cost of the Ballona Creek plan by area. Since Sunnyvale covers about one-fifth of the area covered by the Ballona Creek plan, Mr. Wren estimated that the cost of his recommended BMPs for Sunnyvale would be one-fifth of the Ballona Creek plan's cost, or approximately $500 million. *Id.* at 196:11–24. Likewise, Mountain View is one-tenth the size of Ballona Creek, so Mr. Wren estimated that the cost of his recommended BMPs for Mountain View would be one-tenth of Ballona Creek's costs, or about $270 million. *Id.*

Mr. Wren justified this analysis by observing that Ballona Creek, Sunnyvale, and Mountain View all had similar land uses, levels of development, and levels of impervious cover. *Id.* at 196:25–197:3. But even then, he admitted that he had estimated costs "very coarsely." *Id.* at 196:13; *see also id.* at 209:21–210:3. Moreover, other than considering how Ballona Creek was urban and had similar land uses as Sunnyvale and Mountain View, Mr. Wren did not otherwise

compare their sewer systems such as by considering pipe condition. *Id.* at 332:16–25. And he conceded on cross examination that the large size of a watershed could create water management issues that do not necessarily scale. *Id.* at 333:7–11. In light of all this—the coarseness of Mr. Wren's estimate, the relative lack of explanation for why Ballona Creek is a good cost comparator, and the relative lack of explanation for why scaling by area is appropriate—the Court does not credit Mr. Wren's cost estimate.

Since the Court does not accept any of the three cost inputs into Mr. Shefftz's economic benefit analysis, the Court does not accept Mr. Shefftz's analysis. The Court therefore starts its civil penalty calculation from a baseline of $0.

Seriousness of Violations. The violations here are serious and long-running. They involve actual pollution—not just paperwork violations—that can pose public health risks. *See* Trial Tr. at 1464:21–23. Thus, the penalty for each violation should be greater than the approximately $50 that courts have imposed for procedural violations. *E.g.*, *Californians for Alternatives to Toxics v. Kernen Constr. Co.*, No. 4:20-cv-01348, 2021 WL 1734897, at *5–6 (N.D. Cal. May 2, 2021) (reporting violations). In addition, Limitation B.2 violations are more significant than Prohibition A.1 violations, since B.2 violations require discharges while A.1 violations do not. Prohibition A.1 is violated if bacterial pollution enters an MS4 even if it never discharges. The Court therefore starts with a $10,000 per violation penalty for Limitation B.2 violations and a $2,000 per violation penalty for Prohibition A.1 violations. *See id.* (imposing a $10,000 penalty per discharge violation when there was no evidence of actual harm to human health or wildlife).

Baykeeper is seeking civil penalties only under the 2015 Permit, so the Court cuts off its calculation on June 30, 2022, the last day the 2015 Permit was in effect. *See* Ex. 2 at 1, 8. There were 53 days in the period from January 17, 2019 to June 30, 2022, meaning there were 53 violations of Limitation B.2. Exs. 63–64. That equates to $530,000 in penalties for each City. Prohibition A.1 violations are daily, and there were 1,261 days between January 17, 2019 and June 30, 2022. To avoid double penalties, though, the Court subtracts the 53 days of Limitation B.2 violations, leaving 1,208 penalty days for Prohibition A.1. That comes out to $2,416,000 in

penalties for each City. In total, that is a penalty of $2,946,000 per City.

History of Violations and Good Faith Compliance. Both of these factors weigh in favor of reducing the penalties. The Regional Water has never initiated enforcement actions against either of the Cities for NPDES permit violations. Trial Tr. at 1172:13–16, 1326:7–12. Nor have there been other enforcement actions against the Cities. *Id.* at 792:15–17, 916:16–20, 949:17–19, 1066:7–9. Further, as the Court has found above, the Cities engaged in good faith efforts to comply with their NPDES permits and to remediate the violations identified by Baykeeper. *Supra* Section I.C–D. While those efforts did not pay off, they justify a significant reduction in penalties. The Court therefore reduces the penalties by 60% to $1,178,400 per City.

Economic Impact on Cities. Mr. Shefftz concluded that Cities were well able to afford paying penalties in the tens of millions. Ex. 100 at 8; Ex. 101 at 8; Trial Tr. at 683:2–684:14. The Cities' economic expert took issue with this conclusion as giving insufficient weight to impacts on lower income households within the Cities, who would bear a greater burden as a proportion of their income if the Cities were to pass on the costs of civil penalties to their residents. Trial Tr. at 1255:4–1256:18. However, the penalties being considered here are significantly lower than the penalties Mr. Shefftz concluded the Cities could afford, so the Court is not concerned that burdens require further lowering the penalties.

In conclusion, the Court imposes civil penalties of $1,178,400 per City.[22]

2. Permanent Injunction and Fees

Baykeeper asks the Court to enter a permanent injunction, but it is not clear from Baykeeper's post-trial briefing what the terms of the requested injunction are. Without knowing

[22] The Cities argue that civil penalties are not available against them the Clean Water Act authorizes civil penalties only for violations of "section 1311, 1312, 1316, 1317, 1318, 1322(p), 1328, or 1345 of this title, or any permit condition or limitation implementing any of such sections in a permit issued under section 1342. 33 U.S.C. § 1319(d). According to the Cities, Prohibition A.1 and Limitation B.2 are permit conditions issued under § 1342, but they do not implement any of the enumerated sections.

Because the Cities raised this argument for the first time in what is effectively their post-trial reply brief such that Baykeeper has not had the opportunity to reply, the Court does not consider the argument. *Padilla v. City of Richmond*, 509 F. Supp. 3d 1168, 1180 (N.D. Cal. 2020). The Cities were on notice that Baykeeper was seeking civil penalties, so they should have made this argument in their opening post-trial brief.

those terms, the Court cannot assess whether it would be equitable to enter an injunction. The Court therefore defers ruling on a permanent injunction pending additional briefing on the matter. Baykeeper should file a separate motion for permanent injunction and attach a proposed order providing the terms of the requested injunction. And because there is still an open question about the scope of relief to be granted, the Court will also defer any ruling on a final award of attorneys' fees until after the permanent injunction issue is resolved.

* * *

In sum, the Court finds the Cities liable for violating Discharge Prohibition A.1 from January 17, 2019 to present, and for violating Receiving Water Limitation B.2 from January 17, 2019 to June 30, 2022 every day that it rained at least 0.2 inches. The Court imposes $1,178,400 of civil penalties on each of Sunnyvale and Mountain View. Within seven (7) days, the parties shall submit a stipulation setting a schedule for permanent injunction briefing.

IT IS SO ORDERED.

Dated: March 31, 2026

EDWARD J. DAVILA
United States District Judge

United States District Court
Northern District of California