EAST BAY MUNICIPAL UTILITY DISTICT

DATE: April 23, 2026

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Amit K. Mutsuddy, Director of Wastewater AM

SUBJECT: Follow-Up to Wet Weather Consent Decree Implementation Update

SUMMARY

This memorandum provides additional information requested by the Planning Committee at its March 10, 2026 meeting regarding the Wet Weather Consent Decree.

DISCUSSION

The District and its seven wastewater Satellite agencies are under a 2014 Wet Weather Consent Decree (CD) with the U.S. Environmental Protection Agency (USEPA). The Satellite agencies are comprised of the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont, plus Stege Sanitary District, which provides wastewater collection services for El Cerrito, Kensington, and Richmond Annex. The CD requires rehabilitation of public and private sewer infrastructure to decrease the impacts of stormwater and groundwater entering the collection system (inflow and infiltration, or I&I). The goal of the CD is for the District's three wet weather facilities (WWFs) to no longer discharge to San Francisco Bay during storm events up to a certain size.

The Planning Committee requested additional information regarding I&I sources in the regional wastewater collection system, the status of the Satellites in meeting their CD-required public sewer infrastructure rehabilitation, and risks to the District regarding compliance requirements.

I&I Sources

I&I sources are traditionally removed through both public and private sewer infrastructure rehabilitation. The CD has a timeline for rehabilitating public sewer infrastructure, consisting of sewer mains and maintenance holes (see Satellite Rehabilitation Efforts section below). Private sewer infrastructure is administered through the City of Berkeley's and the District's Regional Private Sewer Lateral (PSL) Programs. The rate of PSL certifications is outside of the control of the City of Berkeley and the District as the compliance triggers are related to actions taken by property owners, such as buying or selling property. The CD also requires the District to implement the Regional Technical Support Program (RTSP) throughout the regional wastewater

collection system to identify additional sources of I&I for removal, thereby increasing the likelihood of achieving compliance.

RTSP Investigations

The RTSP utilizes an adaptive management process, in which the data collected from investigations identifies where further investigations are implemented. The District and Satellites collaborate to determine where investigations are performed, ensure work is completed, and find sources not already planned for rehabilitation. Additionally, the RTSP uses a hydrologic and hydraulic model to assess the location of highest reductions in I&I to reduce discharges from the WWFs. Lastly, localized flow monitoring and precipitation data is used to target specific areas with the highest I&I flows.

The RTSP utilizes industry-standard and cutting-edge technologies to identify specific sources of I&I, including:

- **Flow and precipitation monitoring:** Accurate, localized flow and precipitation monitoring gives an understanding of the relative amount of stormwater and groundwater entering a drainage basin during active storm events and also throughout the rainy season.
- **Smoke testing:** Locations where I&I may be entering the sanitary sewer collection system are identified by introducing smoke into the collection system and noting where it works its way back to the surface. The District has also pursued acoustic investigations as an alternative to smoke testing.
- **Visual inspection:** Maintenance holes and sewer mains are traditionally inspected visually using closed circuit television (CCTV). The District is also piloting the use of untethered video cameras.
- **Smoke testing with CCTV:** This process is effective at identifying stormwater infrastructure directly connected to the sanitary system, as well as indirectly connected sources, such as offset and/or leaky joints of the two systems located in proximity to each other. The District developed this methodology due to challenges with dye testing, the industry standard.
- **Flow isolation studies (FIS):** The FIS occur during and after certain storm events and inspect selected maintenance holes and sewer mains to assess flow characteristics and gain understanding of the performance of the drainage basin. Most importantly, these investigations assess the integrity of the pipe-maintenance hole connections, which are challenging to assess during dry weather conditions. These studies typically reduce the amount of follow-up required from approximately 30,000 lineal feet (LF) of sewer main to less than 3,000 LF.
- **Distributed level array (DLA):** The DLA performs similarly to the FIS for developing an understanding of locations within a drainage basin that allow the most I&I. The advantage of the DLA is that the equipment can be installed and measures responses throughout many storm events, increasing the accuracy of the investigation, though the methodology does not capture pertinent information about the performance within the maintenance hole that is captured by an FIS.

- **Distributed temperature sensing:** Distributed temperature sensing uses a fiber optic cable installed on the bottom of the sewer main to capture temperature fluctuations both spatially and temporally within the sewer main. As I&I is a different temperature than wastewater, the investigation assesses where and how much I&I is entering a sewer main.
- **Conductivity investigations:** Due to the elevated conductivity of the San Francisco Bay and the reasonably limited amount of high conductivity wastewater, investigations for elevated levels of conductivity occur during the dry season. This helps identify potential sources of I&I during the dry season using conductivity as a proxy for both stormwater and groundwater conditions.

RTSP Source Identification

RTSP has identified almost 780 sources, totaling approximately 40 million gallons per day (MGD) of peak flow entering the regional wastewater collection system during the design storm event. The most significant amount of flow identified to date has been from cross-connections with stormwater systems where 24 connections allow approximately 16.3 MGD to flow into the sewers. The largest number of sources identified have been illicit connections on private property, such as area drains or roofs that are improperly plumbing to the sanitary system, where 514 locations allow an estimated 7.3 MGD to enter the sewer system. The drainage areas and resulting flows of the identified illicit connections vary dramatically. Some illicit connections may contribute significant amounts, such as a multi-family property with its entire roof drain system connected, while others may not contribute much, such as a property with an area drain on a small patio. The second largest contributor are maintenance holes and their connections to sewer mains, which allow approximately 8.7 MGD to flow into the sewers from 139 identified locations. Additional sources, including PSLs and previously abandoned sewer infrastructure, have also been identified as allowing I&I entry. Lastly, two additional significant sources have been identified originating from the Port of Oakland, totaling 2.8 MGD.

Cross-connections are generally identified initially through smoke testing; smoke testing with CCTV is used to confirm if they are directly or indirectly connected, which impacts the magnitude of the I&I contribution. Maintenance hole sources are captured predominantly during FIS and maintenance hole camera/video inspections. Illicit connections are identified predominantly through smoke testing. The District is piloting technology to better identify sources of I&I within sewer mains during storm events, such as I&I entry at joints, cracks, and PSL connection points.

RTSP Source Correction

As prescribed in the CD, the District notifies the applicable Satellite when a source of I&I is identified within its jurisdiction. Then, either the Satellite adds the correction of the source to its capital improvement program if the source is entering via a defect in publicly owned infrastructure, or the Satellite notifies the owner of the private asset which has been identified as allowing I&I. The Satellite communicates with the property owner the nature of the defect and the timeline for its correction. The District and the Satellite collaborate in communication with

the private property owner, as appropriate, for the need for the assets correction and the regulatory requirement driving the process. Through the latest reporting period, 261 sources have been corrected, removing almost 24 MGD of I&I.

Annually, the District formally notifies Satellites of I&I sources identified within their jurisdiction by September 30th for the City of Oakland and by December 31st for the remaining Satellites. The USEPA and both State and Regional Water Quality Control Boards receive the annual notifications. In the notices that go to the Satellites (except the City of Oakland), the District determines what sources are required to be corrected within a two-year period. The City of Oakland is required to respond to the District's annual notice by December 31st with a determination of which sources are required to be corrected within the timeframe in the CD.

In December 2023, the USEPA approved an update to the prioritization methodology that is designed to target sources which are significant and should be corrected. The methodology utilizes two criteria. The first criteria is a statistical threshold – the source must be at least one standard deviation greater than the average for all sources identified. The second criteria is a minimum flow threshold – the flow must contribute at least 300,000 gallons per day under peak flow conditions. The dual threshold criteria are consistent with the adaptive management framework of the RTSP. The minimum flow threshold was originally 580,000 gallons per day to focus on larger sources early on when limited data could skew results. Over time, this threshold can be lowered to capture smaller sources and ensure sufficient source correction occurs.

Satellite Rehabilitation Efforts

As required by the CD, the Satellites annually report by September 30 their completed rehabilitation of publicly owned, operated, and maintained wastewater collection systems for the preceding fiscal year. The most recent report was for work completed by June 30, 2025.

- Alameda has consistently met and exceeded its annual work requirements. Over the timespan of the CD, Alameda has rehabilitated approximately 30,000 LF more than the approximate 165,000 LF required.
- Albany has met its requirements to date under the CD. Following some challenges at the start of the CD, Albany has now completed almost 3,300 LF more than the approximately 68,000 LF required.
- Berkeley has had challenges in meeting its CD requirements, particularly in the last four years. Berkeley has rehabilitated almost 209,000 LF and is approximately 34,500 LF behind its cumulative requirement of 243,000 LF.
- Emeryville completed all required rehabilitation efforts under the CD in Fiscal Year 2016. Since then, it repairs localized defects as they are identified.
- Oakland has had challenges in meeting its rehabilitation requirements. In 8 of the last 9 years, the annually reported rehabilitation footage was less than required. Due to a significant surplus of footage reported in Fiscal Year 2014, in which the city rehabilitated almost 100,000 LF more than required, Oakland is 27,000 LF behind its cumulative requirement of 729,000 LF.

- Piedmont is behind on meeting its rehabilitation requirements. In Fiscal Year 2018, the city aggregated several years of required work into one project, getting ahead of its requirements. The second iteration of aggregate work has not been implemented; therefore, Piedmont is approximately 4,700 LF behind on its approximately 38,000 LF of required work.
- Stege Sanitary District has met its requirements under the CD and has rehabilitated 28,000 LF more than its approximately 129,000 LF of required work.

In total, the amount of rehabilitation performed on public infrastructure is behind requirements. While some Satellites are performing more rehabilitation than required, others are not meeting their requirement at this time.

Compliance and Associated Risks

Due to the 22-year duration of the CD, there are interim compliance check-ins for assessing progress towards meeting its goals and objectives. The CD also specifies required actions if a WWF is not in compliance at either the interim check-in or following any final compliance deadline. If all three WWFs demonstrate that they are no longer discharging during the design level event, compliance with the CD will have been achieved. If any of the WWFs are not in compliance, the WWF will be considered lapsed, and the process will continue until compliance is achieved.

Interim Performance Compliance

The first check-in occurred in September 2022, and interim compliance was achieved as the reductions in discharge volumes from all three WWFs exceeded expectations. At the second check-in, in September 2030, the average reduction in discharge volume for the previous three years from Point Isabel WWF and Oakport WWF will be reviewed to confirm acceptable progress. San Antonio Creek WWF does not have an interim benchmark for the second mid-course check-in as it begins compliance testing in December 2028.

For the second check-in, if the reductions in discharge volumes are either equal to or are greater than reductions required for both Point Isabel WWF and Oakport WWF, interim compliance would be achieved and there would not be any potential changes to work under the CD. If CD goals have not been met, though the discharge volumes are within 10 percent of the benchmarks for either of the WWFs, the District and its Satellites may submit a written request to the USEPA to either continue CD requirements as is or present alternatives to existing requirements without implementing a Performance Evaluation Plan (PEP). If the discharge volumes are greater than 10 percent of the benchmarks for either WWF, a PEP must be implemented for that WWF.

A PEP consists of a 2-year data collection effort to inform the District and our Satellites where I&I remains prevalent within the regional wastewater collection system and allows for the creation of a Revised Work Plan (RWP), which the USEPA must approve. The USEPA has broad discretion in its approval authority.

Final Compliance Testing

Compliance testing requires that the discharge volume from a WWF is zero starting at set reporting periods. San Antonio Creek WWF must have no modeled discharge for the design storm event in the December 2028 report to the USEPA. Point Isabel WWF compliance testing starts in December 2034 and Oakport WWF compliance testing starts in December 2036.

If a WWF has an annual discharge volume greater than zero at or following the initial reporting period, that WWF will then be considered lapsed, and the CD requires a process for addressing the additional volume. Similarly, if any of the WWFs experience a discharge following a compliance test and it is determined that the discharge was not due to either the storm event being greater than the design storm event or the result of operator, mechanical or electrical error, the WWF would then be considered lapsed. For either condition, the CD requires a written submittal from the District and our Satellites to the USEPA for its approval. The submittal must explain what improvements are required and the timeframe for implementation. As with the RWP, the USEPA has broad discretion in its approval authority.

Aside from financial risks associated with a potential RWP, the CD allows the USEPA to issue stipulated penalties for non-compliance if any WWF is considered lapsed and has a discharge. The first fiscal year allows for a stipulated penalty of $30,000 per Defendant. The second fiscal year allows for a $50,000 stipulated penalty. The third fiscal year allows for a $70,000 stipulated penalty. The fourth and any subsequent fiscal year allows for a $150,000 stipulated penalty. Each Defendant is allowed the opportunity to explain why it should not be held responsible for the discharge, which the USEPA may consider as part of its discretion for issuing a penalty.

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