BOARD OF DIRECTORS
EAST BAY MUNICIPAL UTILITY DISTRICT

375 - 11th Street, Oakland, CA 94607 Office of the Secretary: (510) 287-0440

Notice of Time Change

PLANNING COMMITTEE
Tuesday, March 12, 2024
9:00 a.m.
Boardroom
375 11th Street
Oakland, CA 94607

Notice is hereby given that the Tuesday, March 12, 2024 Planning Committee meeting of the Board of Directors has been rescheduled from 9:15 a.m. to 9:00 a.m. The meeting will be held in the Administration Building Boardroom at 375 11th Street, Oakland, California.

Dated: March 7, 2024

Rischa S. Cole

Rischa S. Cole
Secretary of the District

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BOARD OF DIRECTORS
EAST BAY MUNICIPAL UTILITY DISTRICT

375 - 11th Street, Oakland, CA 94607 Office of the Secretary: (510) 287-0440

AGENDA
Planning Committee
Tuesday, March 12, 2024
9:00 a.m.
Boardroom
375 11th Street
Oakland, CA 94607

***** Please see appendix for public participation instructions*****

Committee Members: Marguerite Young {Chair}, April Chan and Doug A. Linney

ROLL CALL:

PUBLIC COMMENT: The Board of Directors is limited by State law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.

DETERMINATION AND DISCUSSION:

1.	Follow-up Dam Safety Program	(Yoloye/Tognolini)
2.	Water Quality Program Annual Update – 2023	(Briggs)
3.	Regulatory Compliance Semi-Annual Report – July 1, 2023 through December 31, 2023	(Briggs)
4.	2023 Mokelumne Fishery Update	(Tognolini)
5.	Los Vaqueros Reservoir Expansion Project Update	(Tognolini)

ADJOURNMENT:

Disability Notice

If you require a disability-related modification or accommodation to participate in an EBMUD public meeting please call the Office of the Secretary (510) 287-0404. We will make reasonable arrangements to ensure accessibility. Some special equipment arrangements may require 48 hours advance notice.

Document Availability

Materials related to an item on this agenda that have been submitted to the EBMUD Board of Directors within 72 hours prior to this meeting are available for public inspection in EBMUD's Office of the Secretary at 375 11th Street, Oakland, California, during normal business hours, and can be viewed on our website at www.ebmud.com.

APPENDIX

Planning Committee Meeting

EBMUD Board committee meetings will be conducted in person and via Zoom.
These meetings are recorded and live-streamed.

*Online**
https://ebmud.zoom.us/j/94576194030?pwd=dWZlc3hNU3JNUVBQYmNKWjJSNVZQdz09
Webinar ID: 945 7619 4030
Passcode: 925293

By Phone
Telephone: 1 669 900 6833
Webinar ID: 945 7619 4030
Passcode: 925293
International numbers available: https://ebmud.zoom.us/u/kdmpbwwlg2

*****To familiarize yourself with Zoom, please visit https://support.zoom.us/hc/en-us/articles/201362193-Joining-a-Meeting

Providing public comment - *The EBMUD Board of Directors is limited by State law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.*

- Each speaker is allotted 3 minutes to speak; the Committee Chair has the discretion to amend this time based on the number of speakers
- The Secretary will track time and inform each speaker when the allotted time has concluded
- Comments on **non-agenda items** will be heard at the beginning of the meeting
- Comments on **agenda items** will be heard when the item is up for consideration
- The Secretary will call each speaker in the order received

In person
- Fill out and submit a blue speaker card which is available in the meeting room

Via Zoom
- Use the raise hand feature in Zoom to indicate you wish to make a public comment https://support.zoom.us/hc/en-us/articles/205566129-Raising-your-hand-in-a-webinar
  - If you participate by phone, press *9 to raise your hand
- When prompted by the Secretary, please state your name, affiliation if applicable, and topic

Submitting written comments or materials
- Email written comments or other materials for the Board of Directors to SecOffice@ebmud.com
- Please indicate the meeting date and agenda item number or non-agenda item topic in the subject of the email. Contact information is optional.
- **Please email by 4 p.m. the day prior to the scheduled regular meeting**; written comments and other materials submitted to the Board of Directors will be filed in the record.

To *observe* the Planning Committee Meeting,
please visit: https://www.ebmud.com/about-us/board-directors/board-meetings/

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: March 7, 2024

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager

FROM: Olujimi O. Yoloye, Director of Engineering and Construction
Michael T. Tognolini, Director of Water and Natural Resources

SUBJECT: Follow-up Dam Safety Program

SUMMARY

An annual update on the District's dam safety program was presented to the Planning Committee on September 12, 2023, in accordance with Policy 9.07. In response to questions raised during the update by Planning Committee members, this memorandum describes how the District plans for extreme precipitation events, including climate change, along with estimates for other events (e.g., Atmospheric River 1,000, or ARkStorm 2.0) for context. The information will be presented at the March 12, 2024 Planning Committee meeting.

DISCUSSION

Regulatory oversight of District dams is provided by either the Federal Energy Regulatory Commission (FERC) and/or the California Department of Water Resources Division of Safety of Dams (DSOD). Both FERC and DSOD require dam owners to calculate a probable maximum precipitation (PMP) event and the resulting probable maximum flood (PMF) event for dam, spillway, and appurtenant structures within their jurisdiction.

One of the primary objectives of the PMP and PMF are as scenarios in hydraulic modeling to produce flood inundation maps that are included in the Emergency Action Plans for each dam, which are then used to conduct practice exercises with other emergency management agencies. The results of PMP and PMF modeling are also used to evaluate structural performance and, if necessary, develop mitigation measures.

Probable Maximum Precipitation (PMP)

The PMP represents the maximum amount of rainfall that could theoretically occur within a specific geographic area during an extreme weather event as defined by the National Oceanic and Atmospheric Administration's National Weather Service (NWS). The PMP is intended to be an extremely rare event with no associated return period.

The current regulatory requirement[1] is for dam owners to compute the PMP using the published NWS Hydrometeorological Report (HMR), which specifies the methodology each dam owner must use to estimate the PMP. In 1993, the District used a California-specific HMR (HMR-36, last updated in 1968) to estimate the PMP for Pardee and Camanche dams, which received regulatory approval. PMPs change with time as a result of finer resolution data, expanded frequency of data collected, new storm data, and improved modeling and analytical tools. Consequently, the NWS updated the HMR for California in 1999 (HMR-59). In 2023, the District used HMR-59 to update the PMP for Pardee and Camanche dams; the results are still draft and could change pending review and approval by FERC. The PMP studies for the dams in the East Bay have all been reviewed and updated using the latest standards. The District is planning further refined studies in late 2024 for Upper San Leandro and Chabot Dams.

Although the PMP has no return period, the extreme nature of the event can be put into context by comparing it to other storm events. Figure 1 compares both the 1993 and 2023 PMP estimates to select historical rainfall events, the 100-year storm, and the 1,000-year storm in the Mokelumne River watershed. As shown in Figure 1, the PMP is a very large extreme event as compared to what has been seen in the watershed thus far, even larger than the 1,000-year event.

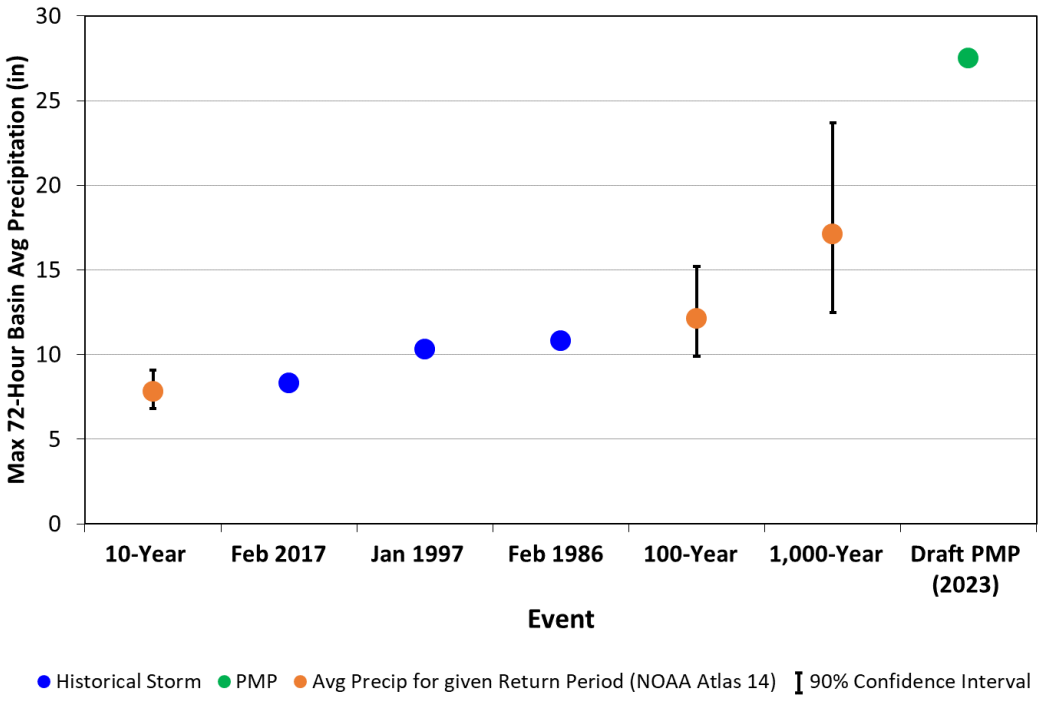

Figure 1. Maximum 72-Hour Basin Average Precipitation in the Mokelumne River Watershed

[1] Federal Power Act – Title 18, Chapter 2 and 8 of the FERC Engineering Guidelines, California Water Code – Division 3, FEMA-94, DSOD Inspection and Reevaluation Protocols (2018)

Probable Maximum Flood (PMF)

The Probable Maximum Flood (PMF) is the resulting flood associated with the PMP and is analyzed as part of the dam safety assessment for the dams, spillways, and appurtenance structures to assess and design water retaining structures. The PMF is estimated using the PMP in hydrologic and hydraulic models in conformance with Federal Emergency Management Agency's Guidelines for Dam Safety (FEMA-94).

Figure 2 compares the latest calculated PMF completed in 2023 to a preliminary estimate of flows in the Mokelumne River during the Great Flood of 1862[2] and ARkStorm 2.0 Future Scenario[3], and other historical storms to help put the PMF into context. As shown in Figure 2, the preliminary PMF is three to eight times larger than the District's estimates of flows during the Great Flood of 1862, ARkStorm 2.0 (which accounts for a warmer future climate condition), and historical large storm events.

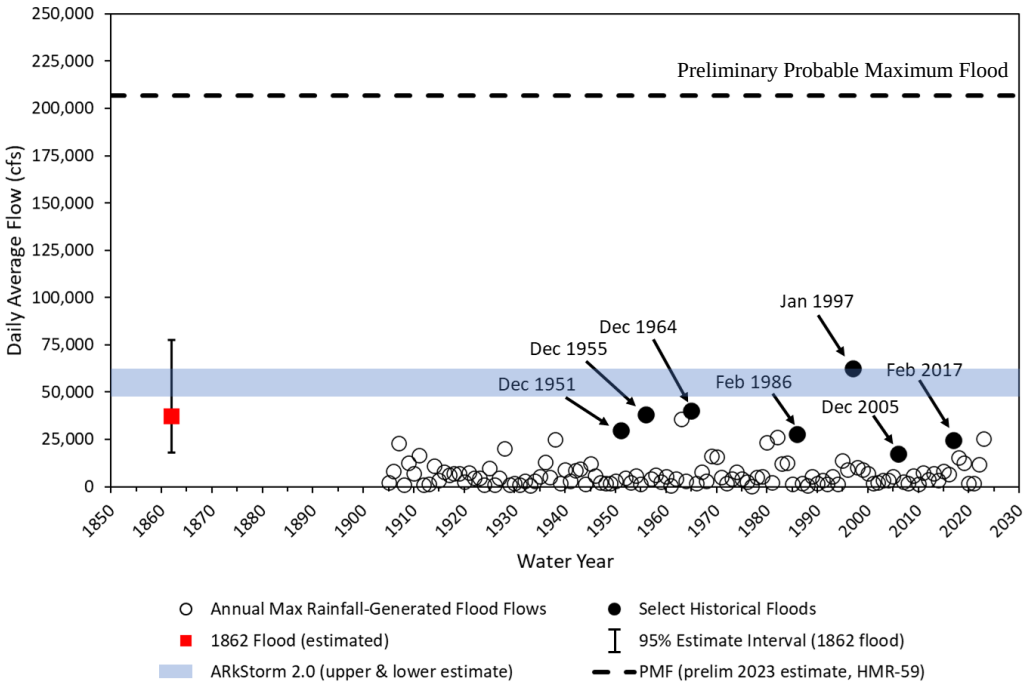

Figure 2. Annual Maximum Unregulated Daily Average Rainfall Flood Flows on the Mokelumne River at Mokelumne Hill

[2] The Great Flood of 1862: The biggest flood in modern history that began with upwards of 15 feet of snow falling in the Sierras followed by a series of atmospheric rivers that brought warm rain and high winds. Due to the lack of information currently available, the preliminary 1861-62 flow for the Mokelumne River was derived from the American River flow where studies were recently completed.

[3] ARkStorm 2.0: A hypothetical storm based on the Great Flood of 1862 initially developed by the United States Geologic Survey for emergency planning purposes, and subsequently modified by academic institutions to include climate change. The District did a preliminary model of the ARkStorm 2.0 future scenario through a hydrologic model of the Mokelumne River watershed to see how the flows compare to historical storms in the watershed

Additionally, the magnitude of the PMF flow is extreme and falls outside of the flood control parameters established by the U.S. Army Corp of Engineers (USACE) to regulate storage and releases at Pardee and Camanche Reservoirs. The USACE parameters require the District to reserve 200,000 acre-feet of flood reservation in the winter. The PMF's peak average daily inflow could be over 200,000 cubic feet per second (or over 400,000 acre-feet per day). This theoretical flood event would overwhelm our required flood reservation in a single day and would far exceed the maximum allowable release and downstream channel capacity.

Anticipated Improvements and Changes to Regulatory Requirements

The current regulatory framework does not incorporate climate change into the hydrologic analysis. However, there is a recent shift in both federal and state legislation to move toward prescribing a methodology that does incorporate climate change.

At the federal level, Congress passed the PRECIP Act (Providing Research and Estimates of Changes in Precipitation Act) in 2022 that directed the NWS to update the PMP methodology (i.e., HMRs). The final updated PMP estimates for all of the U.S. are anticipated to come out in 2030, but likely will take longer. At the State level, the DSOD has acknowledged the need to integrate climate change into PMP calculations as well as deal with uncertainty by looking at a more probabilistic-based risk and consequence assessment. DSOD will be updating their guidelines in the next several years. The District continues to meet with its regulators on understanding and applying new science related to PMP estimates and PMF modeling, particularly with respect to climate change.

District's Plan for Extreme Precipitation Events and Providing Climate Change Resilience

The District is actively investigating and implementing several key measures to respond to the challenges associated with extreme precipitation events, including:

- **Emergency Preparedness Program:** For decades, the District has developed and maintained Emergency Action Plans that guide response during emergency conditions at the dams, and continuously exercises and updates these plans in response to new information, including PMP/PMF studies.
- **Completing Site-Specific PMP/PMF:** The District is actively investigating the use of more refined PMP/PMF approaches that better account for localized watershed climatological conditions, including the effects of climate change.
- **Monitor Climate Change Science & Research:** The District monitors climate change science and research, participates in technical conferences, and regularly meets with industry leaders and regulators. The District is also investigating new modeling that incorporates many climate change scenarios while balancing risk and consequence.
- **Data Collection and Monitoring:** The District has flow, rain, and snow gages it uses to track hydrology, and it is currently investigating installation of soil moisture probes and other

devices that can help track changing flood conditions within key watersheds susceptible to extreme precipitation (i.e., atmospheric rivers) and/or rain on snow events.

- **Forecast Informed Reservoir Operations (FIRO):** The District is preparing to evaluate the feasibility of adaptively managing reservoir operations to move water out of the reservoir ahead of a major extreme event to reduce potential flooding while improving water supply and flows for the environment. The District continues to work with the Center for Western Weather and Water Extremes and Scripps Institute of Oceanography to better understand the applicability of FIRO to the Mokelumne watershed.

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EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: March 7, 2024

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager

FROM: David A. Briggs, Director of Operations and Maintenance

SUBJECT: Water Quality Program Annual Update – 2023

SUMMARY

The attached report provides an update on the District's efforts to ensure the delivery of high-quality water to customers. Water quality data for calendar year 2023 is summarized in the report. A presentation on the Water Quality Program will be made at the March 12, 2024 Planning Committee meeting.

DISCUSSION

From January 1, 2023 through December 31, 2023, the District met all federal and state drinking water standards and 94 percent of the District's internal goals (119 of 126 goals were met). As in previous updates, levels of three types of disinfection byproducts were higher than District goals. Additional goals related to treatment plant and distribution system operations were not met. This is explained further in Attachment 1. Tabular data is presented in Attachment 2.

The District continues to monitor developing federal and state regulations related to lead and other contaminants of concern in drinking water.

CCC:DAB:sd

Attachments: 1. Water Quality Annual Report 2023
2. EBMUD Water Quality Goals – January 1 through December 31, 2023

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ATTACHMENT 1

WATER QUALITY SEMI-ANNUAL REPORT – 2023

This report provides an update on the District's efforts to ensure delivery of high-quality water to its customers for calendar year 2023.

From January 1, 2023 through December 31, 2023, the District met all federal and state drinking water standards and 94 percent of the District's internal goals (119 of 126 goals were met). As in previous updates, levels of three types of disinfection byproducts (DBPs) were higher than District goals. Four additional goals related to treatment plant and distribution system operations were not met. In addition to numerical goals and standards, this report covers the District's efforts to minimize potential lead exposure to customers, monitor contaminants of emerging concern, and prepare for upcoming regulatory changes.

District Water Quality Goals

The District's internal water quality goals are substantially more stringent than federal and state water quality standards.

Chlorinated DBPs: During 2023, the District exceeded two internal water quality goals related to chlorinated DBPs. Total trihalomethanes (TTHMs) and five haloacetic acids (HAA5) are regulated DBPs that form when chlorine reacts with natural organic matter in raw water. The District's goals of 40 parts per billion (ppb) for TTHMs and 30 ppb for HAA5 are half of regulatory standards. Atmospheric rivers early in 2023 significantly affected raw water quality by increasing organic matter and turbidity in runoff. The District's goal was exceeded in 83 out of 96 individual TTHM samples and 82 out of 96 HAA5 samples in 2023. DBP levels have since lowered in the most recent round of testing in early 2024. Upcoming capital projects at the water treatment plants (WTPs) should reduce peak concentrations of DBPs.

Chlorine Residuals: Maintaining an adequate disinfectant residual throughout the distribution system controls the growth of microorganisms and maintains the safety of drinking water. The District analyzes hundreds of chlorine residual samples each month throughout the service area, both from water mains and distribution storage reservoirs. The District's goal is to maintain at least 0.5 milligram per liter (mg/L) chlorine residual in 95 percent of all samples each month. This goal is part of the Partnership for Safe Water Program in which the District participates. In 2023, this goal was met in all samples taken from water mains, but not from all distribution reservoirs. In 3 of 12 months during 2023, more than 5 percent of reservoirs had low chlorine residuals. These low chlorine residual events were caused by nitrification in the District's distribution reservoirs. District staff continue to monitor and respond to low chlorine situations by aggressively cycling reservoirs, removing some reservoirs from service during low demand periods, and adding chlorine directly to selected distribution reservoirs to boost disinfectant levels.

Corrosion Control Index at WTPs: To minimize the corrosivity of the water in the distribution system, water chemistry is adjusted at the effluent of each WTP. Corrosion control treatment helps ensure any incidental lead in the water system or in customer homes does not leach into the water, in addition to reducing corrosion of other materials such as iron and cement. The

Langelier Saturation Index (LSI) is used as an indicator, and the goal is to maintain the LSI between -0.5 and +0.75 in 95 percent of the readings at each WTP.

The LSI goal was met at all WTPs except the Sobrante WTP where exceedances occurred in 3 of 12 months. Treated water from the WTPs supplied by the East Bay reservoirs (Upper San Leandro and San Pablo Reservoirs) typically has higher concentrations of minerals such as calcium and magnesium compared to WTPs supplied with raw water from the Mokelumne River. This difference is due to the watershed geology and hydrology. Precipitation in the East Bay is typically in the form of rain which flows across soil and vegetation, transporting minerals and organic carbon into the water. In contrast, precipitation in the upper Mokelumne watershed is often in the form of snow, which melts slowly and flows across rockier soils with less vegetation. Thus, fewer minerals are transported into Pardee Reservoir.

Total Coliform Bacteria: These indicator organisms are monitored throughout the distribution system to assess the sanitary integrity of the water mains and reservoirs. Hundreds of samples are collected monthly. The regulatory trigger is no more than 5 percent of all samples can be positive for total coliform bacteria. The District's goal is no more than 0.5 percent positive samples in any month. In one month during 2023, 0.57 percent of samples were positive for total coliform, slightly exceeding the goal. Potential causes could include dust-borne particles or storm water entering treated water reservoirs through vents, a contaminated sample tap, backflow incidents, stirred up sediment in distribution piping associated with high flows, or even infiltration from groundwater if pressure temporarily drops. The District maintains a chlorine residual throughout the system to protect against such incursions into the potable water supply. Follow-up samples are collected, and in the case of the positive samples that caused the goal exceedance, the follow-up samples were negative.

Other Water Quality Issues

The District has several ongoing water quality initiatives to prepare for upcoming regulatory changes or potential threats to water quality.

Perfluoroalkyl and polyfluoroalkyl substances (PFAS)

In March 2023, the United States Environmental Protection Agency (EPA) proposed enforceable regulations for six PFAS: Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) via maximum allowable levels, and four additional PFAS calculated via a "health index" comprised of perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid (HFPO-DA) and its ammonium salt (so called "GenX chemicals"), perfluorohexane sulfonic acid (PFHxS), and perfluorobutane sulfonic acid (PFBS). In chemical and product manufacturing, GenX chemicals are considered a replacement for PFOA, and PFBS is considered a replacement for PFOS. The EPA intends to finalize the new PFAS standards early in 2024, with compliance required three years later. Additional regulatory actions have focused on source control such as banning use of PFAS in food packaging and other consumer products and banning PFAS-containing firefighting foams.

The State Board continues its efforts to regulate PFAS in drinking water and wastewater. California has drinking water notification levels and response levels for four PFAS: PFOA, PFOS, PFHxS, and PFBS, and is working on enforceable drinking water regulations. These will be no less stringent than the EPA requirements.

Required PFAS Monitoring

In April 2023, the District began collecting samples for 29 different PFAS compounds under the federal Unregulated Contaminant Monitoring Rule 5 (UCMR5); all results are reported directly to EPA. Each WTP effluent must be sampled quarterly for at least four quarters by the end of 2025.

Results are available from three of the four UCMR5 sampling events for most WTPs. All values to date are below the Method Reporting Levels (MRLs), the lowest level EPA considers reliable. The UCMR5 protocol does not allow quantification below the MRLs which range from 3 - 7 nanograms per liter (ng/L). UCMR5 sampling will continue through 2025.

California initiated PFAS monitoring through a series of phased monitoring orders prioritizing monitoring based on vulnerability of each water source to PFAS contamination. The latest phase, in 2022, required sampling of the Sacramento River, including the Freeport intake. The Freeport sampling began in the first quarter of 2023 and continues quarterly. This monitoring is being conducted in coordination with Sacramento County Water Agency. The local and upcountry watersheds are considered more protected against PFAS contamination and have yet to be included in the State Board's monitoring orders. All results under the State's monitoring orders to date are below the minimum reporting levels.

Additional PFAS Monitoring

To better characterize the sources in local watersheds, additional samples beyond regulatory requirements were collected from several creeks supplying San Pablo and Upper San Leandro (USL) Reservoirs. Several PFAS compounds have been detected in raw water, some at levels above the proposed regulatory standards for WTP effluent, likely resulting from stormwater runoff from the cities of Orinda and Moraga. Runoff from other creeks likely dilute these concentrations before water enters treatment plants. Additional raw water sampling is ongoing, and studies have begun to assess potential alternative treatment options if necessary.

San Joaquin County groundwater associated with the District's Demonstration Recharge Extraction and Aquifer Management Project was tested for PFAS during January 2022, June 2023 and again in January 2024; no PFAS compounds were detected. Bayside groundwater monitoring wells were tested in July 2023. Low levels of Perfluorobutanoic acid (PFBA) and PFOS were detected in one well, located immediately adjacent to the Bayside well. This is likely due to previous injections of USL WTP water. A low concentration of PFOS was detected in another monitoring well located about 0.5 miles upgradient of the Bayside well. This decommissioned, deep production well is not owned by the District and was improperly constructed/sealed. As a result, this well may have allowed PFAS near the ground surface to

reach the deep aquifer. In 2022, the well was properly decommissioned and sealed with a sand-grout mixture per the requirements of Alameda County. All PFAS detected in the Bayside monitoring wells are below EPA's proposed regulatory standards.

Lead

The District continues to minimize customer exposure to lead in drinking water through careful monitoring of corrosion control in the distribution system and abatement of remaining lead-containing components. Based on regulatory monitoring data, customer sampling voucher program, school sampling, and other sampling data, lead levels in the District distribution system remain very low. Nearly all samples above one ppb are related to residential plumbing fixtures.

The customer sampling program continues to be popular with customers. Over 3,700 customers have taken advantage of the offer for a free lead test. Results from these samples continue to be good; 90 percent of sample results are one ppb or less.

In the last eight years, state and federal lead regulations pertaining to lead have become increasingly stringent. Water systems are now required to develop and publish detailed inventories of both the public-side service lines (from the water main to the meter) and private-side lines and develop a plan and schedule for their removal. The District has already removed all lead service lines and is in the process of removing the remaining galvanized steel lines with short connectors made of lead (also known as pigtails or goosenecks).

Customer-side galvanized service lines formerly connected to a District-side lead service line must be identified. These lines are termed Galvanized Requiring Replacement (GRR) in the inventory. The District has approximately 4,000 of these GRRs and is in the process of notifying these customers in accordance with the new regulations. In advance of sending letters, staff conducted an outreach program to cities, counties, and local groups to explain the new requirements and answer questions. This proactive outreach was well received and likely reduced public concerns. The District's sampling indicates lead exposure from GRRs is very limited.

In November 2023, the EPA published proposed changes to the lead and copper regulations. The new rules would require water systems to replace any portion of a lead service line including the customer portion. Further, GRRs are considered lead under federal regulation. Therefore, any customer with a galvanized customer-side service line that was formerly downstream of a lead service line on the District-side, would be required to be replaced. In the District's service area, staff estimate there to be about 4,000 GRRs.

The proposed regulation is not clear as to who would pay for the customer-side replacement. In the proposed rule, the EPA acknowledges that water systems like the District may not have the authority to access, or the legal ability to pay for customer-owned plumbing replacement. In such cases, the new rules would require the District to request access, request payment from the customer, and then facilitate replacement through a third-party contractor. If the customer is unwilling to allow access or pay, staff do not believe the District would be responsible for

replacement. The request for access and payment from the customers with GRRs must be done annually.

Sampling in the District's service area from customer taps shows that GRRs are not exposing customers to elevated levels of lead. Sets of samples have been taken from 50 customers, five samples per home, in accordance with EPA's new sampling protocol. Each of the 250 samples are less than the new action level of 10 ppb, and the 90 percentile is less than one ppb. These low results are due to the District's proactive removal of the lead service lines years ago and excellent corrosion control. The District will include these results in written communication (along with required EPA language) to allow customers to interpret this low risk. These results could also be used to further strengthen a request to waive the recurring request for consent to remove (at the customer's expense).

The new regulatory package includes several additional items that are already in place at the District such as inclusion of lead fittings in the inventory, providing no-cost analysis of customer tap samples upon request, provision of filters during disturbance of lead components and follow-up sampling.

The District submitted a letter to EPA during the comment period supporting the proposed rule but suggested a regulatory mechanism for reducing customer notification requirements when utilities demonstrate that GRRs are not a source of lead. Similar recommendations were included in comment letters from several other water agencies and industry organizations. EPA expects to finalize the revisions to the lead and copper rules by the end of 2024.

Backflow Protection

In December 2023, the State Board adopted its new *Cross-Connection Control Policy Handbook*. The new requirements could have two significant impacts on the District.

Under existing regulation, backflow protection assemblies (BPAs) at a non-residential service only need to be tested annually. If the device is functioning properly, no additional action is needed other than to report the result to the District. The new regulations would require regular re-surveying of existing BPAs. A survey is not a functional test; it is an on-site assessment by a certified cross-connection control specialist to confirm the BPA is appropriate for the present uses and plumbing on the property. The District will work with the State Division of Drinking Water (DDW) to determine the interval of "regular" surveys. This requirement would be a substantial effort for the District's roughly 60,000 existing commercial devices.

The second impact of the new regulation would be to expand the use of BPAs onto residential properties not presently using them. Currently the purchase, installation, and testing of residential BPAs are responsibilities of the District (unlike non-residential BPAs), per District water service regulations. Under the new regulations, residential units with fire sprinklers or swimming pools may require BPAs. Staff estimate that tens of thousands of new residential BPAs may be needed for our service area. In addition to the substantial cost impacts, the District may need to revisit the water service regulations (putting responsibility on home owners).

Initial discussion with DDW indicate willingness to flexibly interpret and phase these new requirements. Any flexibility would be achieved without increasing public health risks which staff believe to be low anyway. The District has until July 1, 2025 to develop an implementation plan for review and approval by DDW. Staff plan on providing technical content to DDW for interpreting the new requirements to help reduce the impact to the District.

Untreated groundwater from private wells and other non-potable sources can affect the distribution system without appropriate backflow protection. In 2017, staff began proactively investigating the potential for improperly configured groundwater wells by reviewing county and District records. That effort yielded 5,514 potential properties with domestic wells. To date, staff has verified the presence of 732 wells, and either installed or facilitated the installation of 455 backflow prevention devices where water services did not already meet requirements. Through field visits, an additional 82 previously unknown wells have been discovered. District staff will continue to target at least 350 sites for investigation each year until all known wells are investigated and backflow protection is added. As of February 2024, about 3,400 site inspections remain.

Microplastics

The State Board continues to develop regulations for microplastics in drinking water as required by Senate Bill 1422. Two analytical methods and sampling protocols have been developed, and several commercial laboratories are developing capacity for this work. The State Board is using a policy handbook to convey the recommended analytical procedures and sampling protocols. A small pilot program will be used to sort out the details of the sample collection and analysis. This pilot program will include about 30 water systems, including the District. The pilot effort will be followed by state-wide implementation once the methodologies are established and vetted. All drinking water utilities, beginning with surface water sources, will eventually be required to conduct four consecutive years of microplastics monitoring and share results in their Consumer Confidence Reports.

EBMUD Water Quality Goals – January 1 to December 31, 2023

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status
EPA/State Water Quality Regulations										
Primary (Health Standards)										
Inorganic Chemicals										
Aluminum	ug/L	1000	600	50	200			½SMCL	100	Met
Antimony	ug/L	6	1	6				PHG	1	Met
Arsenic	ug/L	10	0.004	2				PHG	0.004	Met
Asbestos	MFL	7	7	0.2				½MCL	3.5	Met
Barium	ug/L	1000	2000	100				½MCL	500	Met
Beryllium	ug/L	4	1	1				PHG	1	Met
Cadmium	ug/L	5	0.04	1				PHG	0.04	Met
Chromium (total)	ug/L	50		10				½MCL	25	Met
Cyanide	mg/L	0.15	0.15	0.1				½MCL	0.075	Met
Fluoride (source water)	mg/L	2	1	0.1				PHG	1	Met
Hexavalent chromium	ug/L		0.02					PHG	0.02	Met
Mercury	ug/L	2	1.2	1				½MCL	1	Met
Nickel	ug/L	100	12	10				PHG	12	Met
Nitrate + Nitrite Total (as N)	mg/L	10	10					½MCL	5	Met
Nitrate as N [x4.5 for NO3]	mg/L	10	10	0.4				½MCL	5	Met
Nitrite (as N)	mg/L	1	1	0.4				½MCL	0.5	Met
Perchlorate	ug/L	6	1	2				PHG	1	Met
Selenium	ug/L	50	30	5				½MCL	25	Met
Thallium	ug/L	2	0.1	1				PHG	0.1	Met
Organic Chemicals										
Volatile Organic Compounds (VOCs)										
1,1,1-Trichloroethane (1,1,1-TCA)	ug/L	200	1000	0.5				½MCL	100	Met
1,1,2,2-Tetrachloroethane	ug/L	1	0.1	0.5				PHG	0.1	Met
1,1,2-Trichloroethane (1,1,2-TCA)	ug/L	5	0.3	0.5				PHG	0.3	Met
1,1-Dichloroethane (1,1-DCA)	ug/L	5	3	0.5				½MCL	2.5	Met
1,1-Dichloroethylene (1,1-DCE)	ug/L	6	10	0.5				½MCL	3	Met
1,2,4-Trichlorobenzene	ug/L	5	5	0.5				½MCL	2.5	Met
1,2-Dichlorobenzene (o-DCB)	ug/L	600	600	0.5				½MCL	300	Met
1,2-Dichloroethane (1,2-DCA)	ug/L	0.5	0.4	0.5				½MCL	0.25	Met
1,2-Dichloropropane	ug/L	5	0.5	0.5				PHG	0.5	Met
1,3-Dichloropropene (Total)	ug/L	0.5	0.2	0.5				PHG	0.2	Met
1,4-Dichlorobenzene (p-DCB)	ug/L	5	6	0.5				½MCL	2.5	Met

Note: District to meet all applicable regulatory requirements at all times.

Compounds highlighted in blue appear more than once in this table.

EBMUD Water Quality Goals – January 1 to December 31, 2023

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status
Benzene	ug/L	1	0.15	0.5				PHG	0.15	Met
Carbon Tetrachloride	ug/L	0.5	0.1	0.5				PHG	0.1	Met
Dichloromethane (Methylene Chloride)	ug/L	5	4	0.5				½MCL	2.5	Met
Ethylbenzene	ug/L	300	300	0.5				½MCL	150	Met
Freon 113 (1,1,2 trichloro 1,2,2 trifluoroethane)	ug/L	1200	4000	10				½MCL	600	Met
Methyl-tert-butyl ether (MTBE)	ug/L	13	13	3	5			½SMCL	2.5	Met
Monochlorobenzene (Chlorobenzene)	ug/L	70	70	0.5				½MCL	35	Met
Styrene	ug/L	100	0.5	0.5				PHG	0.5	Met
Tetrachloroethylene	ug/L	5	0.06	0.5				PHG	0.06	Met
Toluene	ug/L	150	150	0.5				½MCL	75	Met
Trichloroethylene (TCE)	ug/L	5	1.7	0.5				PHG	1.7	Met
Trichlorofluoromethane (Freon 11)	ug/L	150	1300	5				½MCL	75	Met
Vinyl Chloride (VC)	ug/L	0.5	0.05	0.5				PHG	0.05	Met
Xylenes (Total)	ug/L	1750	1800	0.5				½MCL	875	Met
cis-1,2-Dichlorethylene (c-1,2-DCE)	ug/L	6	13	0.5				½MCL	3	Met
trans-1,2-Dichloroethylene (t-1,2-DCE)	ug/L	10	50	0.5				½MCL	5	Met
Synthetic Organic Compounds (SOCs)										
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	0.0017	0.01				PHG	0.0017	Met
2,3,7,8-TCDD (Dioxin)	pg/L	30	0.05	5				PHG	0.05	Met
2,4,5-TP (Silvex)	ug/L	50	3	1				PHG	3	Met
2,4-D	ug/L	70	20	10				PHG	20	Met
Alachlor (Alanex)	ug/L	2	4	1				½MCL	1	Met
Atrazine (Aatrex)	ug/L	1	0.15	0.5				PHG	0.15	Met
Bentazon (Basagran)	ug/L	18	200	2				½MCL	9	Met
Benzo(a)pyrene	ug/L	0.2	0.007	0.1				PHG	0.007	Met
Bis(2-ethylhexyl)phthalate (DEHP)	ug/L	4	12	3				½MCL	2	Met
Carbofuran	ug/L	18	0.7	5				PHG	0.7	Met
Chlordane	ug/L	0.1	0.03	0.1				PHG	0.03	Met
Dalapon	ug/L	200	790	10				½MCL	100	Met
Di(2-ethylhexyl)adipate	ug/L	400	200	5				½MCL	200	Met
Dinoseb (DNBP)	ug/L	7	14	2				½MCL	3.5	Met
Diquat	ug/L	20	6	4				PHG	6	Met
Endothall	ug/L	100	94	45				½MCL	50	Met
Endrin	ug/L	2	0.3	0.1				PHG	0.3	Met
Ethylene dibromide (EDB)	ug/L	0.05	0.01	0.02				PHG	0.01	Met
Glyphosate	ug/L	700	900	25				½MCL	350	Met

Note: District to meet all applicable regulatory requirements at all times.

Compounds highlighted in blue appear more than once in this table.

EBMUD Water Quality Goals – January 1 to December 31, 2023

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status
Heptachlor	ug/L	0.01	0.008	0.01				½MCL	0.005	Met
Heptachlor Epoxide	ug/L	0.01	0.006	0.01				½MCL	0.005	Met
Hexachlorobenzene	ug/L	1	0.03	0.5				PHG	0.03	Met
Hexachlorocyclopentadiene	ug/L	50	2	1				PHG	2	Met
Lindane (Gamma BHC)	ug/L	0.2	0.032	0.2				PHG	0.032	Met
Methoxychlor	ug/L	30	0.09	10				PHG	0.09	Met
Molinate	ug/L	20	1	2				PHG	1	Met
Oxamyl (Vydate)	ug/L	50	26	20				½MCL	25	Met
PCB's	ug/L	0.5	0.09	0.5				PHG	0.09	Met
Pentachlorophenol (PCP)	ug/L	1	0.3	0.2				PHG	0.3	Met
Picloram	ug/L	500	166	1				PHG	166	Met
Simazine	ug/L	4	4	1				½MCL	2	Met
Thiobencarb	ug/L	70	42	1	1			½SMCL	0.5	Met
Toxaphene	ug/L	3	0.03	1				PHG	0.03	Met
1,2,3-Trichloropropane	ug/L	0.005	0.0007	0.005				PHG	0.0007	Met
Disinfection By-Products (DBPs)										
Bromate	ug/L	10	0.1	1				½MCL	5	Met
Chlorite	ug/L	1000	50	20				PHG	50	Met
Haloacetic Acids (HAA5)	ug/L	60						¾MCL	30	Not Met
Total Trihalomethanes (TTHM)	ug/L	80						1/2 MCL	40	Not Met
Radionuclides										
Alpha	pCi/L	15		3				½MCL	7.5	Met
Beta	pCi/L			4			50	Other [1]	25	Met
Radium 226 + 228	pCi/L	5						½MCL	2.5	Met
Strontium-90	pCi/L	8	0.35	2				PHG	0.35	Met
Tritium	pCi/L	20000	400	1000				PHG	400	Met
Uranium	pCi/L	20	0.43	1				PHG	0.43	Met
Microbiological										
%Total Coliforms Positive/Mo.	Organisms/100 ml	5%						Other [2]	0.5%	Not Met
TCR Tap Total Chlorine Residual	mg-Cl_2/L							Meets Partnership for Safe Water	≥ 0.5 mg-Cl_2/L in ≥95% of routine samples per month	Met
Reservoir Total Chlorine Residual	mg-Cl_2/L							Exceeds Partnership for Safe Water [3a]	≥ 0.5 mg-Cl_2/L in ≥95% of reservoirs per month [3b]	Not Met
Treatment Techniques										
Individual Filter Effluent (IFE) Turbidity	NTU							Exceeds Partnership for Safe Water [4]	<0.10 NTU in 99.5% of samples per filter (monthly)	Not Met

Note: District to meet all applicable regulatory requirements at all times.

Compounds highlighted in blue appear more than once in this table.

EBMUD Water Quality Goals – January 1 to December 31, 2023

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status
Combined Filter Effluent (CFE) Turbidity	NTU							Exceeds Partnership for Safe Water [4]	< 0.10 NTU in 99.9% of samples per WTP (monthly)	Met
Distribution System Fluoride	mg/L							Other [5]	0.6-1.2	Met
Lead 90th percentile	ug/L		0.2	5			15	½ AL[6]	7.5	Met
Copper 90th percentile	ug/L		300	50			1300	½ AL[7]	650	Met
Langelier Saturation Index (LSI)	unitless							Corrosion Control	-0.5 to 0.75 in 95% WTP effluent samples (annually)	Not Met
Acrylamide	Dose and %						0.05 % mono-mer by wt. dose not to exceed 1 mg/L	Other [8]	0.05% monomer by wt. dose not to exceed 1 mg/L	Met
Secondary (Aesthetic) Standards										
Aluminum	ug/L	1000	600	50	200			½SMCL	100	Met
Chloride	mg/L				250			½SMCL	125	Met
Color	color unit				15			½SMCL	7.5	Met
Copper	ug/L		300	50	1000			PHG	300	Met
Foaming agents (MBAS)	ug/L				500			½SMCL	250	Met
Iron	ug/L				300		100	Other [9]	100	Met
Manganese	ug/L				50	500	15	Other [9]	15	Met
Methyl tertiary butyl ether (MTBE)	ug/L	13	13	3	5			½SMCL	2.5	Met
Odor threshold	TON				3			SMCL	3	Met
Silver	ug/L				100			½SMCL	50	Met
Specific Conductance	uS/cm				900			½SMCL	450	Met
Sulfate	mg/L				250			½SMCL	125	Met
Thiobencarb	ug/L	70	42	1	1			½SMCL	0.5	Met
Total Dissolved Solids	mg/L				500			½SMCL	250	Met
Turbidity (distribution)	NTU				5			½SMCL	2.5	Met
Zinc	ug/L				5000			½SMCL	2500	Met
Customer Expectations										
District-caused complaints	Com-plaints/ month						30	Other [10]	30	Met
Emerging Contaminants										
Inorganic Chemicals										

Note: District to meet all applicable regulatory requirements at all times.

Compounds highlighted in blue appear more than once in this table.

EBMUD Water Quality Goals – January 1 to December 31, 2023

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status
Boron	ug/L			100		1000		NL	1000	Met
Chlorate	ug/L					800		NL	800	Met
Organic Chemicals										
1,2,4-Trimethylbenzene	ug/L					330		NL	330	Met
1,3,5-Trimethylbenzene	ug/L					330		NL	330	Met
Cylindrospermopsin	ug/L						0.7	HA [11]	0.7	Met
Microcyctins	ug/L						0.3	HA [11]	0.3	Met
N-Nitrosodi-methylamine [NDMA]	ng/L		3			10		PHG	3	Not Met
N-Nitrosodiethylamine [NDEA]	ng/L					10		NL	10	Met
Naphthalene	ug/L					17		NL	17	Met

[1] ½ screening level
[2] 1/10th 5% MCL
[3] (a) ≥ 0.5 mg-Cl2/L in ≥95% of routine monthly samples; (b) excludes reservoirs post treatment data
[4] <0.10 NTU 95% of the time
[5] Optimal Fluoride Dose (0.7 mg/L) per 2015 US Public Health Service recommendation
[6] ½ Action Level
[7] ½ Action Level; compliance based on in-home samples.
[8] USEPA Treatment Technique
[9] Based on operational experience
[10] Based on historical data
[11] USEPA Health Advisory Level

Note: District to meet all applicable regulatory requirements at all times.
Compounds highlighted in blue appear more than once in this table.

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EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: March 7, 2024

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: David A. Briggs, Director of Operations and Maintenance DB

SUBJECT: Regulatory Compliance Semi-Annual Report – July 1, 2023 through December 31, 2023

SUMMARY

The Regulatory Compliance Semi-Annual Report provides the status of the District's efforts to meet the objectives of and to comply with environmental, health, and safety regulations in accordance with District Policy 7.05 – Sustainability and Resilience, and Policy 7.09 – Workplace Health and Safety. This report will be presented at the March 12, 2024 Planning Committee meeting.

DISCUSSION

A summary of the major regulatory issues during the reporting period is outlined below. Specific details and activities are in the attached report.

Environmental Compliance: The District negotiated a settlement of $20,000 with the Bay Area Air Quality Management District in October 2023 for two Notices of Violation issued in previous reporting periods for digester gas releases from the Main Wastewater Treatment Plant. The release on May 18, 2021 was caused by a mechanical failure and resulted in a fine of $12,000. The release on April 2, 2023 was caused by an operator error and resulted in a fine of $8,000.

Workplace Health and Safety: The District's Workforce Planning and Development Strategic Plan goal includes a Key Performance Indicator for Lost-Time Injury Rate (LTIR) of less than or equal to 3.0. The District's rolling 12-month LTIR as of December 31, 2023, is 2.43. If work-related COVID-19 cases are included, the LTIR increases to 3.21 for the same period. Required isolation periods for COVID-19 are now as low as one day when employees are asymptomatic. Lost time due to COVID-19 is expected to be lower in 2024.

CCC:DAB:sd

Attachment: Semi-Annual Regulatory Compliance Report

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ATTACHMENT

REGULATORY COMPLIANCE SEMI-ANNUAL REPORT
July 2023 through December 2023

This report provides the status of the District's efforts to meet the objectives of and comply with environmental, health, and safety regulations in accordance with District Policy 7.05 – Sustainability and Resilience, and Policy 7.09 – Workplace Health and Safety.

ENVIRONMENTAL COMPLIANCE

Orinda Water Treatment Plant Bioassay Investigation

Orinda Water Treatment Plant (WTP) Acute Toxicity Exceedance: Beginning in 2022 and continuing throughout 2023, the Orinda WTP experienced multiple failed quarterly bioassay tests. These tests are required by the facilities National Pollutant Discharge Elimination System (NPDES) permit. A series of meetings was held with the San Francisco Regional Water Quality Control Board (SFRWQCB) to explain the investigative study of the failed tests. The SFRWQCB subsequently approved the District's plan. Throughout the reporting period, the District worked to identify the toxicant and inform the SFRWQCB of the results. These tests will continue in 2024.

Orinda Water Treatment Plant (WTP) Project Grout Release

On September 19, 2023, 100 to 200 gallons of grout leaked into San Pablo Creek adjacent to the Orinda WTP. This leakage was a result of pressurized grout used to stabilize walls of a large excavated area associated with construction of a new chlorine contact basin.

Immediately following the incident, the District notified all relevant regulatory bodies and jointly developed a detailed plan for cleanup and ongoing monitoring. A key component of the response was the swift removal of the leaked grout, the rehabilitation of the creek substrate, and the establishment of an ongoing environmental monitoring program. This program employs qualified biologists monitoring the creek and its adjacent areas for any signs of impact on the local aquatic life and wildlife while grout operations are in progress.

The District is actively working with regulatory agencies to ensure all necessary permits are updated. An on-site meeting with California Fish and Wildlife is scheduled for March 8, 2024, aimed at providing a full briefing on the project status, the measures taken to address the grout leakage, and the strategies in place for continuous environmental monitoring to ensure the ongoing protection of San Pablo Creek. The excavation and grouting is ongoing and expected to continue until April of this year. It remains uncertain if any enforcement actions will be pursued given the absence of long-term environmental impact.

Sanitary Sewer Overflows (SSOs)

Camanche South Shore Recreation Area: On July 16, 2023, sewage was released from a manhole at the RV Park. The cause of the SSO was due to general debris lodged in the sewer. The estimated volume was 290 gallons. The majority of the SSO infiltrated into the surrounding soil.

The area was promptly cleaned up. On July 18, 2023, maintenance staff video inspected upstream and downstream of the mainlines and adjacent cleanouts.

Camanche North Shore Recreation Area: On October 9, 2023, an SSO was detected at Mobile Home Park No. 2 (MHP), where a build-up of fats, oil, and grease caused a blockage in the main sanitary sewer line, followed by the release of sewage through a manhole at the MHP. The estimated volume was 724 gallons, which mostly absorbed into the surrounding soil. Prompt clean-up of the spilled sewage was conducted, including disinfection of the impacted area. The manhole was re-located to reduce future impacts to residents.

Air Quality Issues

The District negotiated a settlement of $20,000 with the Bay Area Air Quality Management District (BAAQMD) in October 2023 for two prior Notices of Violation for digester gas releases from the Main Wastewater Treatment Plant. The release on May 18, 2021, resulted in a fine of $12,000 and occurred when a cap on a sample port on Digester 6 became loose when returning the digester to service and allowed digester gas to escape. Corrective actions for the May 18, 2021 incident included implementation of improved standard operating procedures (SOPs), checklists, and procedures for inspecting appurtenances on digesters prior to placing them in service to prevent leaks. The release on April 2, 2023 resulted in a fine of $8,000 when digester gas vented out of a P-trap on a drain line during a line flushing maintenance activity. Corrective actions for the April 2, 2023, incident included installation of more visible arrow indicators on the three-way valves on in-service digester P-traps and incorporating photos of the arrow indicator positions into SOPs for P-trap flushing.

Other Environmental Issues

Lancha Plana Pond Embankment: The Lancha Plana pond, adjacent to Camanche Reservoir, holds low-pH water from legacy gold mine operations. The original earthen embankment incurred structural damage after heavy rainfall in 2017 and 2023. The Central Valley Regional Water Quality Control Board (CVRWQCB) requested the District produce and submit a workplan for the repair to prevent discharge of the impacted water to Camanche Reservoir. The District submitted the workplan on June 2, 2023, implemented the plan and completed the work by October 2023. Staff continue to monitor the site after significant storms and report site status to the CVRWQCB monthly. The site is stable and performing as expected. Staff will continue to work with CVRWQCB on a long-term plan to stabilize the site. No water quality impacts were detected in Camanche Reservoir.

Adeline Maintenance Shops Site Investigation: The Alameda County Department of Environmental Health (ACDEH) requested the District conduct site investigations at the Adeline Maintenance Center (AMC) to define the extent of petroleum hydrocarbons in soil and groundwater associated with former underground storage tanks (USTs). The District completed site investigations in accordance with an approved work plan in 2009. The results indicated elevated concentrations of petroleum hydrocarbons remain in soil and groundwater in localized areas near the former USTs. In June 2016, the ACDEH requested the District conduct a Sensitive Receptor Survey for the AMC Shops parcel. In 2021, the ACDEH requested a Site Conceptual

Model and Workplan. The work was conducted, and sampling results were delivered in the summer of 2023. The ACDEH reviewed the report and requested a workplan for additional delineation of the groundwater plume in two locations at the site to fill data gaps since the limits of the plume have not yet been identified. The workplan was delivered in March 2024.

WORKPLACE HEALTH AND SAFETY

Lost-Time Injury Rate (LTIR): The District's Workforce Planning and Development Strategic Plan goal includes a Key Performance Indicator for LTIR of less than or equal to 3.0. The District's rolling 12-month LTIR as of December 31, 2023 is 2.43. If work-related COVID-19 cases are included, the LTIR increases to 3.21 for the same period. The LTIR measures the number of work-related injuries or illnesses resulting in days away from work per 100 employees.

COVID-19: During this period, there were two Cal/OSHA defined COVID-19 outbreaks at District facilities. There were a total of 229 COVID cases – 10 were assumed to be work related transmissions and 219 were assumed to be non-work related. The provisions of Senate Bill 1159 – Worker's Compensation Presumption expired on December 31, 2023. This law created a rebuttal presumption of workplace transmission of COVID-19 which placed higher liability on the District.

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EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: March 7, 2024

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Michael T. Tognolini, Director of Water and Natural Resources MTT

SUBJECT: 2023 Mokelumne Fishery Update

SUMMARY

In 2023, following a closure of the salmon fishery in California, the Mokelumne River experienced a record salmon return well above the long-term average (1940-present) of 5,743 with 28,698 fish returning to the Mokelumne River. This year, the District also met and exceeded its hatchery goals, and filled our spawning habitat in the lower Mokelumne River, benefitting both the natural and hatchery production from the Mokelumne River. This follows the 2022 ocean fishery record returns of Mokelumne origin salmon in both the commercial (51%) and recreational (44%) harvest. As of February 20, 2024, the hatchery counted a record 974 adult steelhead and collected over 815,315 eggs. The steelhead run will continue through February. A review of the 2023 return and the key factors affecting salmon and steelhead returns to the Mokelumne River will be presented at the March 12, 2024 Planning Committee meeting.

DISCUSSION

In 2023, the Mokelumne River Chinook salmon return hit record-setting numbers including 28,698 total salmon returning, 9,881 entering the hatchery to produce over 13 million eggs. Remaining fish produced nearly 5,000 nests in the river for a potential of up to 25 million eggs incubating in the river. Juvenile salmon are currently emerging and moving downstream. Hatchery egg production this year supported mitigation and ocean enhancement goals, as well as California Department of Fish and Wildlife drought resilience goals, and supported Coleman National Fish Hatchery near the Sacramento River with a transfer of 2 million eggs to support their program.

Because of year-to-year variability, one indicator the District uses to assess the health of the Mokelumne fishery is the running nine-year average return, which represents three complete three-year salmon life cycles. The nine-year average annual return is 12,972 or 226 percent of the long-term average. The steelhead trout return of 974 adults, is the largest return seen in the steelhead population. The District continues to provide a suite of management actions to support the salmon population; however, the species is subject to multiple stressors in both the

freshwater and marine environment. Salmon returns to the Mokelumne River since recordkeeping began in 1940 are shown in the attachment.

In October 2023, the District implemented six pulses using 60,000 acre-feet of water accumulated from flood control requirements, and timed the pulses to meet salmon migration needs coordinating with neighboring rivers. Pulses were implemented every week in October. The Delta Cross Channel (DCC) gates were closed multiple times in October and November through the majority of the migration season. Coded wire tag data from in-river recoveries in 2023 showed that Mokelumne River origin hatchery fish migrated back to the Mokelumne River at a higher proportion than those that strayed to the American River. Of all coded wire tag returns to the Central Valley of Mokelumne Origin fish, 69 percent were recovered on the Mokelumne River and only 15 percent were recovered on the American River as strays. This is a much lower stray rate than 2022 when 36 percent of Mokelumne Origin fish strayed to the American River. Of all the fish that returned to the Mokelumne, 60 percent were Mokelumne Origin, and 36 percent were Nimbus Origin. Multiple DCC gate closures and six high pulses likely contributed to the high Nimbus contribution on the Mokelumne this year.

Due to the low statewide numbers of fish escaping the ocean fishery to freshwater in 2022, the commercial and recreational seasons were closed in 2023 to support a rebound of the stocks. While the Mokelumne experienced record returns this year, the same is not true of other watersheds, and the resource agencies are still determining whether there will be an ocean fishing season in 2023.

Steelhead trout returns for the Mokelumne River (primarily measured at the hatchery) have been relatively small since recordkeeping began in 1963. The District and various resource agency partners who comprise the Mokelumne River Hatchery Coordination Team have, over the last 15 years, implemented numerous measures to improve returns such as changing release locations and timing, eliminating egg imports, and improving rearing techniques. In 2023, 974 adult steelhead entered the hatchery, yielding an egg take of approximately 815,315. The goal for the hatchery is to produce 250,000 yearling steelhead smolts from the eggs collected, so steelhead goals will likely be met for the year.

Habitat restoration and protection actions were completed on the lower Mokelumne River in 2023. Maintenance of the spawning reach included adding 800 cubic yards of gravel among three existing spawning riffles just below Camanche Dam. Additionally, the design was completed for three fish screens to be installed on private landowner property near the town of Thornton downstream of Woodbridge Dam. These screens will improve juvenile survival past riparian diversions as fish make their way to the ocean. Fish screens will be installed this summer once fabrication and permitting are complete.

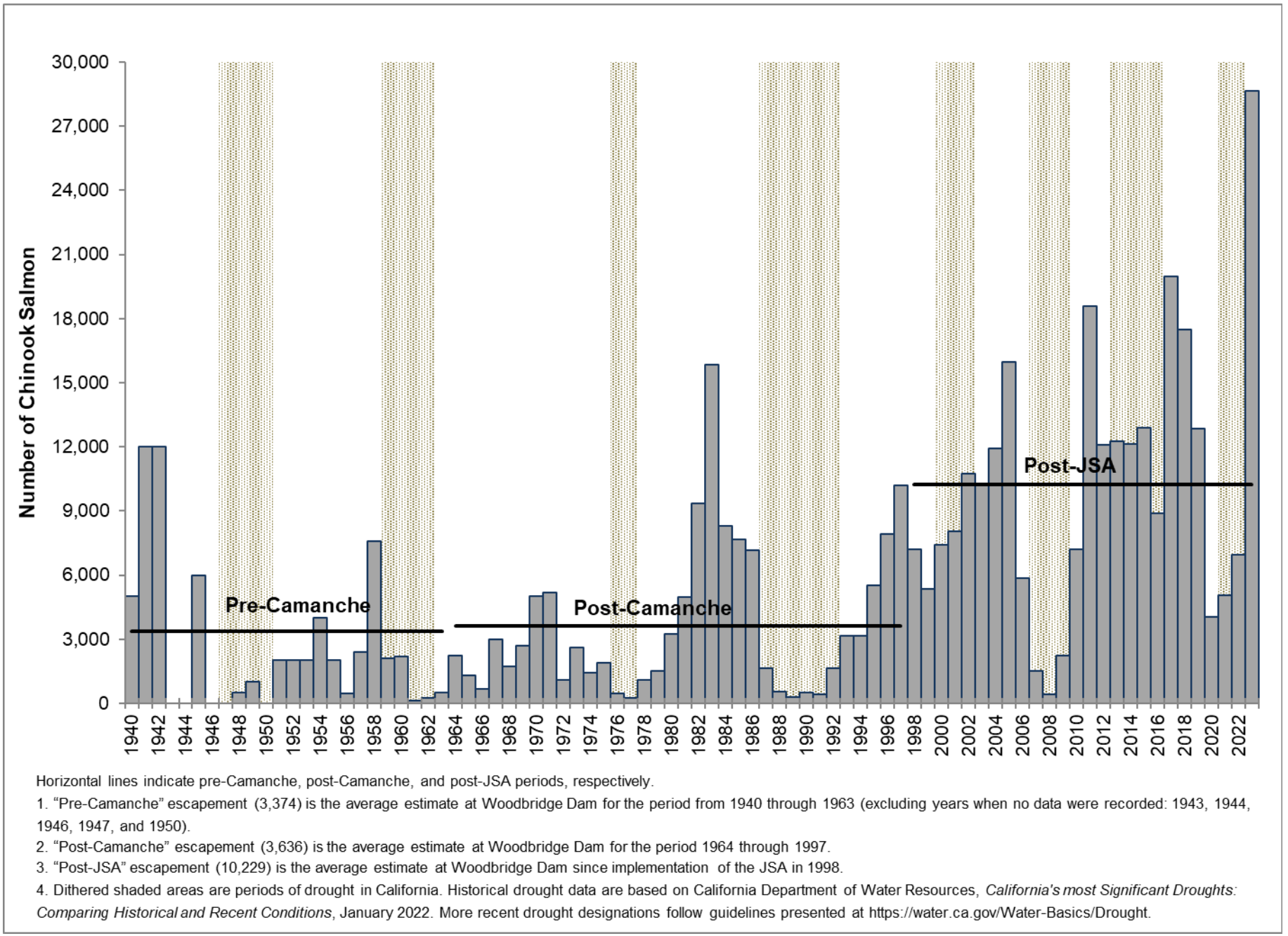
NEXT STEPS

Weather, water temperature, and Delta conditions continue to challenge juvenile salmon migrating from the Mokelumne River. Overcoming these effects will continue to be at the forefront of fisheries management activities going forward. The District, working with resource

agencies, will continue to implement measures to improve the survival of juvenile salmon as they migrate through the Central Delta, and continue to restore habitat for spawning, juvenile rearing and juvenile migration through gravel, floodplain and diversion screening projects. In 2024, the District will receive over $8,000,000 in grant funding to support floodplain, gravel, screening, and monitoring projects over the next eight years to support Voluntary Agreement non-flow measures. Grant funds will be leveraged to get projects into a ‘shovel-ready’ state by funding design and permitting and existing permitted projects will be completed as part of a suite of activities to support continued success of the salmon and steelhead fisheries on the Mokelumne River.

CCC:MTT:dec

Attachment: Annual Chinook Salmon Escapement to the Lower Mokelumne River Graph



Horizontal lines indicate pre-Camanche, post-Camanche, and post-JSA periods, respectively.

1. "Pre-Camanche" escapement (3,374) is the average estimate at Woodbridge Dam for the period from 1940 through 1963 (excluding years when no data were recorded: 1943, 1944, 1946, 1947, and 1950).
2. "Post-Camanche" escapement (3,636) is the average estimate at Woodbridge Dam for the period 1964 through 1997.
3. "Post-JSA" escapement (10,229) is the average estimate at Woodbridge Dam since implementation of the JSA in 1998.
4. Dithered shaded areas are periods of drought in California. Historical drought data are based on California Department of Water Resources, *California's most Significant Droughts: Comparing Historical and Recent Conditions*, January 2022. More recent drought designations follow guidelines presented at https://water.ca.gov/Water-Basics/Drought.

Annual Chinook Salmon Escapement to the Lower Mokelumne River

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: March 7, 2024

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Michael T. Tognolini, Director of Water and Natural Resources MTT

SUBJECT: Los Vaqueros Reservoir Expansion Project Update

SUMMARY

The Los Vaqueros Reservoir (LVR) Joint Powers Authority (JPA) has revised the schedule for the development of the LVR Project agreements to allow for more time to address key issues. Board consideration of the Service Agreement by the JPA member agencies has been delayed from spring 2024 until July/August 2024 but this is contingent on resolution of critical unresolved issues, so the schedule for the Service Agreement may be further delayed. An update on the LVR Project schedule and agreements will be provided at the March 12, 2024 Planning Committee meeting.

DISCUSSION

The schedule for completing the agreements has been updated by the JPA to give additional time to address the important Project issues. The Project agreements that are under development include the EBMUD Facilities Usage Agreement (FUA), Contra Costa Water District (CCWD) agreements [Facilities Usage, Operations and Maintenance (O&M), Design and Construction], the CCWD Backstop Plan Agreements, Service Agreement, and the Contracts for Administration of Public Benefits (CAPBs).

Updated Schedule

The Project agreements that will be brought to EBMUD's Board for consideration have been delayed from spring 2024 until July/August 2024, at the earliest, and include the EBMUD FUA, the Backstop Water Conveyance Agreement, and the Service Agreement. The California Water Commission (CWC) award hearing for the Project is currently anticipated in November 2024. Development of the funding agreement between the JPA and CWC is anticipated to be completed in February 2025.

Because of the schedule delay, the JPA has developed a plan to reduce the JPA's and CCWD's monthly expenditures and will extend the existing funds in the LVR Multi-Party Agreement Amendment No. 5 (MPA 5) another year from June 2024 until June 2025. The JPA is drafting

MPA 6, which will be a no cost time extension with a term from July 1, 2024 through June 30, 2025.

EBMUD Facilities Usage Agreement (FUA)

In February, EBMUD responded to the comments on the draft FUA termsheet from the JPA and member agencies. A request raised by the JPA was for EBMUD to include the possibility of water conveyance through Freeport during drought years. EBMUD's response was that since Freeport is reserved first for EBMUD during droughts, the FUA could not provide a commitment to Freeport conveyance during drought years. The JPA is conducting additional evaluation of the potential use of the Freeport facilities based on EBMUD's responses to the JPA's comments.

CCWD Design and Construction Agreement

While progress on some of the Design and Construction Agreement (DCA) issues was made over the past several months as a result of discussions that senior management from three of the member agencies have had with CCWD, the group was unable to resolve important issues and positions related to construction risk sharing and management. Since these risks affect all the JPA members, they are currently being discussed by all the members through the JPA DCA Ad Hoc Committee.

CCWD Facilities Usage Agreement (FUA)

CCWD and the JPA are discussing the JPA's December 2023 response to the CCWD FUA termsheet. The JPA has expressed a desire to include a guaranteed minimum annual delivery quantity and include terms that would reduce future payments to CCWD if these minimum annual deliveries to the JPA are not met. Other JPA proposals include modification of CCWD's water quality criteria for filling the reservoir and having first priority for conveyance and storage capacity after CCWD's customer demands are met. The methodology used by CCWD to calculate usage fees is also still under discussion.

CCWD Operations & Maintenance Agreement

This agreement is under development by CCWD, and a draft has not been shared with the JPA.

CCWD Backstop Plan Agreements

CCWD Backstop Plan Agreements include water supply agreements, the CCWD-EBMUD Backstop Water Conveyance Agreement, and other CCWD agreements to provide continued service to CCWD customers. The possibility of EBMUD providing backstop water conveyance for CCWD using the Freeport facilities is one of the options that CCWD is pursuing as part of its Backstop Plan to mitigate its water quality and water supply risks during dam construction. EBMUD has responded to CCWD's comments on the draft Backstop Water Conveyance Agreement that EBMUD sent to CCWD in January. Discussions are ongoing between EBMUD

and CCWD to address EBMUD's need to ensure that its water transfer sources remain protected if CCWD pursues water transfers as a backstop water source.

Service Agreement

Advancement of the Service Agreement was paused in fall 2023 as the JPA and member agencies worked to address the critical issues on the other agreements. To facilitate discussions on issues related to capacity allocation and operations and how they would be addressed in the Service Agreement, the JPA initiated a workgroup last year consisting of staff from the member agencies. In February, the JPA reconvened this workgroup to discuss the potential effect of the California Department of Fish and Wildlife (CDFW) Incidental Take Permit on available CCWD diversion capacity along with updates from the JPA members on their LVR storage requests (storage is oversubscribed by 50,000 acre-feet; EBMUD's request remains at 30,000 acre-feet) and the Transfer-Bethany Pipeline (TBPL) capacity request (EBMUD will not be using the TBPL). Other unresolved points for EBMUD in this agreement include operational priorities for filling the reservoir and the priority of an exchange between CCWD and EBMUD when EBMUD requests water from storage.

Contracts for Administration of Public Benefits

The JPA has developed the draft Ecosystem Contracts for Administration of Public Benefits (CAPB) and the draft Recreation and Emergency CAPB. The draft CAPBs have also been shared with the JPA member agencies, CDFW, and the Department of Water Resources (DWR). The JPA will be negotiating the CAPBs with CDFW and DWR this spring 2024.

NEXT STEPS

Staff will continue to engage in discussions with the JPA, CCWD, and other member agencies to resolve the critical issues on the Project agreements. In addition, staff will also continue to work to resolve the key issues necessary to determine participation in the Project including updating EBMUD's cost evaluation and advancing the source of water supply. Committee and Board updates on the Project are scheduled over the next several months prior to EBMUD Board consideration of the agreements in July/August 2024, at the earliest.

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