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 MEETING
8:30 a.m.
Tuesday, August 14, 2018

Notice is hereby given that on Tuesday, August 14, 2018 the Planning Committee Meeting of the Board of Directors has been rescheduled from 9:15 a.m. to 8:30 a.m. The meeting will be held in the Training Resource Center of the Administration Building, 375 - 11th Street, Oakland, California.

Dated: August 9, 2018

Rischa S. Cole

Rischa S. Cole
Secretary of the District

W:\Board of Directors - Meeting Related Docs\Notices\Notices 2018\081418_planning_time_change.docx

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, August 14, 2018
8:30 a.m.
Training Resource Center

(Committee Members: Directors Mellon {Chair}, Linney and Young)

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.	FY18 Emergency Preparedness and Business Continuity Readiness	(Chan)
2.	PG&E Community Wildfire Safety Program	(Chan)
3.	Information Technology Security Update	(Levine)
4.	Dam Safety Program Annual Report	(Irias)
5.	Port of Oakland Memorandum of Understanding	(Lee)
6.	Water Quality Program Semi-Annual Update	(Briggs)

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.

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: August 9, 2018

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Clifford C. Chan, Director of Operations and Maintenance CCC

SUBJECT: FY18 Emergency Preparedness and Business Continuity Readiness

INTRODUCTION

Policy 7.03 – Emergency Preparedness/Business Continuity requires the District to have an Emergency Preparedness Program to manage critical functions during an emergency. The policy also requires the District to create and maintain a Business Continuity Program to minimize disruptions of critical business functions and enhance its capability to recover operations. This memo summarizes the District's Fiscal Year (FY) 2018 readiness accomplishments and FY19 plans. This item will be presented at the August 14, 2018 Planning Committee meeting.

SUMMARY

The District evaluates its Emergency Preparedness and Business Continuity Programs annually to determine readiness to respond to emergencies. In FY18, the District made significant progress in mitigating risk, preparing for disasters, and improving its readiness to respond to emergencies. The District evaluates its readiness based on progress in five areas summarized below:

- Planning: Updated 11 Business Continuity Plans (BCPs) and 29 response plans
- Training: Provided over 1,600 hours of training to employees
- Tests and Exercises: Conducted or participated in 47 exercises, tests, and drills
- Mitigation: Continued disaster recovery planning for information systems and worked on emergency supply distribution
- Outreach and Coordination: Participated in emergency fairs and coordinated preparedness efforts with cities and other utilities

DISCUSSION

A number of hazards, such as earthquakes, fires, or cyberattacks, can impact the District's critical infrastructure or disrupt business functions. The Emergency Preparedness and Business Continuity Programs include preparing plans, conducting training and exercises, completing mitigation activities, and performing outreach to minimize the impact of these hazards. These programs are part of a continuous improvement process. Activities in the five focus areas are summarized below.

Planning

The District made great strides in its preparedness program plans including updating the Emergency Operations Plan (EOP). Eleven BCPs and 29 response plans were updated. Eleven Site Security Emergency Action Plans (SSEAPs) were updated, 1 new SSEAP was created and 17 emergency response plans were developed or updated to provide specific guidance for employees. BCPs were updated to incorporate the critical document plans, communication approach, and deployment instructions.

Training

Training provides employees with knowledge of District plans and skills to be prepared to respond in an emergency. Over 1,600 student hours were provided to staff to improve response, business continuity, and preparedness training. The District made significant progress in developing training materials and outreach publications for employees to help clarify roles, responsibilities, and expectations in emergencies.

Tests and Exercises

Tests and exercises improve employee experience and proficiency in emergency response. The District conducted or participated in 47 exercises with other agencies and mutual assistance partners. The exercises included a major functional exercise of the EOT; the bi-annual District-wide emergency communications drill; functional exercises of alternative work locations; and a series of exercises to support the District's EOT Logistics Section.

Mitigation

The District made significant progress implementing a centralized process for documenting, responding, and communicating with critical customers. Additionally, the District made infrastructure improvements to key facilities including upgrades to the water treatment plants, reservoirs, and pumping plants.

Outreach and Coordination

Staff participated in several emergency fairs to educate customers on the District's programs and how individuals should prepare for emergencies. Staff also worked with the Las Vegas Valley Water District, Los Angeles Department of Water and Power, Pacific Gas and Electric, Contra Costa Water District, Santa Clara Valley Water District, San Jose Water Company, San Francisco Bay Area Federal Executive Board, San Francisco Public Utilities Commission, the American Water Works Association, California Utilities Emergency Association, and Water Research Foundation to share information and best practices for emergency preparedness and business continuity. In addition, the District reached out to several cities including Berkeley, Danville and Oakland regarding potable water points of distribution following an earthquake. Discussions and support of the USGS Haywired Earthquake Report included significant input by

District forces from several departments, as well as public information on regional water system coordination and preparedness.

FY18 Events

Highlighted below are several key lessons learned and outcomes from the FY18 events:

- In response to the severe winter storms in 2017, the District developed and implemented an approach to collect information and document daily operations to ensure effective capture of costs and actions taken.
- The District provided mutual-aid assistance during the Northern California fires and identified areas to improve our process for receiving and sending District forces to other agencies in emergencies.
- The District has improved documentation, coordination, and communication as a result of the Administration Fire Pump Testing and AMC Power Outage events.

NEXT STEPS

In FY19, the District will review and update key plans and conduct tests, exercises, and training as outlined below:

- Planning: Update BCPs, Business Continuity Program Plan, and SSEAPs for the remaining cities.
- Training: Continue to track compliance for minimum training in emergency response and business continuity.
- Tests and Exercises: Continue conducting routine tests of kiosks, satellite phones, and emergency notification systems including Marconi. Continue conducting BCP exercises, the EOT functional exercise, and the Board of Directors alternative work location exercise.
- Mitigation: Complete IT system replacements and migration of Marconi to ISD for control and administration.
- Outreach and Coordination: Continue working with cities and other utilities on post-earthquake water distribution plans.

ARC:CCC:sd

I:\SEC\2018 Board Related Items\Committee 2018\2018_planning ctte\081418_planning ctte\OMD- Annual Readiness Report FY18

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: August 9, 2018

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Clifford C. Chan, Director of Operations and Maintenance CCC

SUBJECT: PG&E Community Wildfire Safety Program

INTRODUCTION

Over the last decade, electrical utilities have been found to be increasingly liable for wildfires caused by their operations. Investor-owned utilities (IOUs) are limited in their ability to pass these costs on to their respective ratepayers pursuant to rulings by California Public Utilities Commission (CPUC). These factors have led electrical utilities, including Pacific Gas and Electric (PG&E), to develop preemptive service shutoff programs when the utility determines public safety to be at risk. The District is working with PG&E to minimize the potential impacts to District operations from a preemptive shutoff program while addressing public safety concerns. This item will be discussed at the August 14, 2018 Planning Committee meeting.

DISCUSSION

PG&E initiated its Wildfire Safety Program in March 2018 following the extensive 2017 wildfires in Northern California. The program involves preemptive de-energization of power lines when conditions (e.g., high wind and fuel load, and low humidity) may result in PG&E's power lines initiating a fire. On July 12, 2018, the CPUC adopted Resolution Electric Safety and Reliability Branch (ESRB)-8 which expanded the outreach, notification, and mitigation requirements for IOUs implementing such programs. Resolution ESRB-8 requires PG&E to initiate numerous meetings with communities, first responders, and public utilities like the District to discuss their program. The District first met with PG&E in July and plans to meet again on August 20, 2018.

PG&E's program is limited to CPUC-designated Tier 2 and Tier 3 high fire-threat areas which encompass many District facilities in the hills including the area affected by the 1991 Oakland Hills fire. Under Resolution ESRB-8, PG&E is required to evaluate the District's needs for backup power and help develop mitigation strategies for critical facilities. District staff is preparing an inventory of critical and essential water facilities within the Tier 2 and 3 areas and will share this information with PG&E prior to the August 20 meeting. Although these mitigation strategies were intended by the CPUC to be completed prior to program implementation, PG&E has indicated that their program is active now.

The District's primary concern is that PG&E consider and acknowledge the role of adequate water supply when contemplating de-energization. Resolution ESRB-8 has a "reasonableness" criteria that IOUs must apply prior to de-energizing electrical service and places the burden on the IOU to demonstrate that its decision is necessary to protect public safety. De-energization of a region may help prevent ignitions but could also threaten public safety by limiting the District's ability to pump water into storage reservoirs or maintain adequate pressure in the water distribution system, which will impact fire-fighting flows. If a wildfire never develops, loss of water pressure could create a public safety issue by increasing the likelihood of drinking water contamination.

The CPUC requires PG&E to submit a report outlining its public outreach, notification, and mitigation plan by August 12, 2018. Input from the District will help improve their plan. District staff has stressed that adequate advance notice is imperative to protect public safety. Such notice would allow the District to increase pumping prior to de-energization and maximize water storage in the affected areas.

NEXT STEPS

District staff will meet with PG&E staff on August 20, 2018 to discuss notification triggers and mitigation plans. Staff is also preparing a letter to PG&E reinforcing the District's concerns and is coordinating with other water agencies experiencing similar challenges.

ARC:CCC:sd

I:\SEC\2018 Board Related Items\Committee 2018\2018_planning ctte\081418_planning ctte\OMD- PGE Community Wildfire Safety Program

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: August 9, 2018

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Andrew J. Levine, Manager of Information Systems

SUBJECT: Information Technology Security Update

INTRODUCTION

At the September 12, 2017 Planning Committee, staff presented an update on Information Technology (IT) security at the District. At that meeting the committee requested an annual IT Security update. This memo provides an update on the status of information security at the District and the IT security related efforts planned for Fiscal Year (FY) 2019. This topic will be presented at the August 14, 2018 Planning Committee meeting.

DISCUSSION

The primary responsibility of the IT Security Division is to ensure the confidentiality, integrity, and availability of District information technology systems and data. This includes securing against ever evolving cyber threats and ensuring that critical District business systems are available following a disaster.

While implementing security improvements typically involves staff throughout the Information Systems Department (ISD), the IT Security Division provides leadership for analyzing risks and potential solutions, and managing security projects.

Cyber Crime Trends

- Data breaches resulting in the loss of sensitive data and personally identifiable information are continuing to occur at a rapid pace.

- Ransomware as a Service (RaaS) has made the launching of attacks easy for cybercriminals who do not have the technical knowledge required to develop malware. Ransomware is malware that encrypts data and demands payment from the victim to get the data back.

- Banking trojans are malware that can steal banking credentials and have surpassed ransomware as the top malware threat.

- Cryptocurrency mining (cryptomining) is the process of using the central processing unit (CPU) of a computer to validate cryptocurrency transactions such as Bitcoin and in return receive fractional amounts of the cryptocurrency. Cybercriminals are using cryptomining malware to steal the CPU power of infected systems to generate cryptocurrency.

New Cyber Security Readiness Key Performance Indicators (KPIs)

New to the District strategic plan are several KPIs that measure cyber security operational readiness. These KPIs include metrics regarding software patching, database security reviews, business recovery exercises, security controls reviews, security awareness, and IT security assessments.

IT Security Program Review

ISD has contracted with a third party vendor to validate ISD's overall approach to IT security including reviewing existing priorities, security architecture, tools, controls and processes.

Center for Internet Security Critical Security Controls

ISD has begun the implementation of the Center for Internet Security Critical Security Controls. The Center for Internet Security is a non-profit entity that has developed process controls which are considered cybersecurity best practices for securing information systems and data.

NEXT STEPS

Staff will review the findings and recommendations from the third party assessment of the District's IT security strategy for business systems and make adjustments as needed. Staff will continue the process of implementing the Center for Internet Security's Critical Security Controls to further protect critical District information systems and data. Additionally, the Internal Auditor will conduct a vulnerability assessment of the District business computing systems in late FY19.

AJL:WLJ:trp

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: August 9, 2018

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Xavier J. Irias, Director of Engineering and Construction XJI

SUBJECT: Dam Safety Program Annual Report

SUMMARY

This report is provided in accordance with Policy 9.07 – Dam Safety Program, whereby the District's Chief Dam Safety Engineer (CDSE) provides an annual update to the General Manager, who informs the Board of dam safety issues, actions from the previous calendar year related to dam safety, projected dam safety activities for the upcoming year(s), and an assessment of the adequacy of the budget to cover the cost of safety needs. This report documents the CDSE's conclusion that the District's dams are considered safe for continued operation. These items will be presented at the Planning Committee meeting on August 14, 2018.

DISCUSSION

This is the second Dam Safety Program Annual Report, and provides an update of notable program accomplishments since the August 2017 report. To ensure the dams' safety, the District has an active, comprehensive dam safety program. Under the program, staff monitor dams using instruments, inspect them visually, complete periodic dam safety reviews, and perform maintenance or capital improvements as needed.

The dam safety program is overseen by the District's designated CDSE, Xavier J. Irias, and is subject to both state and federal oversight via the California Division of Safety of Dams (DSOD) and Federal Energy Regulatory Commission (FERC) respectively. The program covers all 27 of the District's dams including Pardee and Camanche in the Sierra Nevada Mountains, five local raw water storage reservoirs and 20 smaller dams within the service area that store treated water.

Recent and Upcoming Activities

Recent Legislation

Two new state laws were passed in response to the 2017 Oroville dam emergency:

Senate Bill 92 (SB 92), effective July 1, 2017, requires development of Emergency Action Plans (EAP) and updated inundation maps for dams under DSOD jurisdiction, of which the District has 21. Staff prepared and submitted the required EAP's, and work to update the inundation maps is anticipated to be completed by end of Fiscal Year 2019 (FY19).

Assembly Bill 1270, approved by the Governor on February 26, 2018, codifies the state's program to update dam inspection and reevaluation protocols as soon as possible. Formalizing current practices, the bill requires California Department of Water Resources (DWR) to inspect most jurisdictional dams annually, and requires dam owners to operate critical outlet and spillway control features annually and demonstrate outlet operability in DWR's presence every three years. The bill also requires DSOD to update inspection and evaluation protocols each decade, and subjects dam inspection reports to California's Public Records Act with sensitive data withheld. The District already performs inspections annually so this law is not expected to impact our procedures.

Dam Safety Training Program

The District has a long history of training staff to ensure that each person involved in dam safety knows his or her role and how to perform it. In recent years, staff has worked to formalize and document training to improve consistency, which is particularly important given the number of retirements and new hires. This past year, the District joined the Centre for Energy Advancement through Technological Innovation (CEATI) as an organizational member, which provides the District access to dam training materials that will be incorporated into the District's training modules. In addition, the District may purchase pre-developed modules to accelerate development of modules geared towards staff member's specific roles in the Dam Safety Program.

In June 2017, Post-Earthquake Response training was provided to new upcountry staff to ensure their familiarity with the Dam Safety Program.

Emergency Plans, Drills and Exercises

FERC's dam safety program provides general requirements for EAPs at hydropower projects under the FERC's jurisdiction, which includes Pardee and Camanche Dams. Every five years, licensees are required to conduct a functional exercise that simulates multi-agency coordinated activities in response to a mock dam safety related emergency. The exercise provides participants with verification, training, and practice to improve the EAP and the operational readiness and coordination efforts of all parties responsible for responding to dam emergencies. The District is required to conduct its functional exercise with a tabletop exercise this year. The event will be held jointly with Jackson Valley Irrigation District (JVID) on September 19, 2018 at Pardee Center.

- The District also held an EAP Orientation Seminar on November 30, 2017 at Pardee Center. Attendees included 37 staff members from 12 emergency management agencies, such as county emergency services offices, local fire departments, law enforcement, Caltrans, DWR, FERC, National Weather Service, and staff from EBMUD, JVID, and Woodbridge Irrigation District. A second seminar was held on December 6, 2017 in Oakland. The discussions at the seminar clarified the EAP activation criteria and notification protocol for High Flow Emergency Level.
- The District conducted an EAP notification drill on October 18, 2017 to assess communication and coordination between the District's general emergency response procedures and those specifically required for FERC facilities. At the conclusion of the drill, staff identified areas of possible improvement such as clarification of notification procedures, adjusted the EAP accordingly, and held a second drill in January 2018 to validate those improvements.
- A tabletop exercise and workshop was conducted internally with key District staff on June 4, 2018 to review and discuss current communication protocols and response trigger levels for physical and cyber security incidents affecting the dams. Possible improvements to procedures, training, and communication are being drafted for the Dam Safety Program Steering Committee's consideration.

Dam Inspection and Surveillance

Staff inspects each dam monthly; the inspection includes the dam itself as well as its appurtenances and instrumentation. In addition, annual inspections are conducted with representatives from DSOD for jurisdictional dams, and with FERC for the upcountry dams.

This year, DSOD inspections of Camanche and Pardee Dams took place on May 31, 2017. DSOD inspections of Briones, San Pablo and Upper San Leandro (USL) dams were completed in July 2017. In addition, fully-cycled drain valve exercises in the presence of the DSOD inspector for Briones, San Pablo, Lafayette and USL reservoirs took place in July 2017; Chabot in October 2017; and Danville and Moraga Reservoirs in December 2017. The open-cut dams were inspected by DSOD in late August and early September 2017.

The annual Dam Surveillance report for local reservoirs was submitted to DSOD in May 2018, and the report for Pardee and Camanche was submitted in June. The reports included a thorough evaluation of data and instrumentation issues to ensure that the dams were safe for continued operations.

As required by FERC Part 12D regulations, the District completed its Part 12D detailed inspection of Pardee and Camanche dams with the District's independent consultant (IC) and FERC representative in September 2017. The FERC Part 12D is discussed in more detail below. In addition, the annual FERC inspection of Camanche and Pardee dams took place from April 24-26, 2018. The FERC inspector noted various follow-up items involving instrumentation

repairs and improvements, clarification on the function of a project feature, vegetation control on embankments, and maintenance and monitoring requests, as are typical of inspections.

The annual Dam Safety Surveillance and Monitoring Reports for Camanche and Pardee dams were submitted to FERC in April 2018. The reports included a thorough analysis, evaluation, and interpretation of data and instrumentation issues to ensure that the dams were safe for continued operations.

Based on the results of the inspections and with concurrence of the regulatory agencies, all District dams are deemed safe for continued operations.

Dam Safety Studies and Improvements

The following are key highlights from the District's current and upcoming dam safety capital projects and studies:

Chabot Dam Seismic Upgrade – The project was completed in October 2017. The dam has been stabilized with an earthen buttress underlain by cement deep soil mixing columns to strengthen potentially liquefiable soils within the downstream toe of the earthen dam. In addition, a seepage collection trench was installed and the reservoir outlet works were retrofitted and relocated to an onshore shaft to ensure their safe operation after an earthquake.

USL Reservoir Tower Retrofit – The seismic retrofit of USL Reservoir Tower is nearing completion. The contractor installed tower braces to provide seismic stability and replaced the outlet tower valves and controls to improve reliability. The project is substantially complete, and final contract closeout is expected in August 2018.

Dam Seismic Stability Studies – The District has completed updated seismic studies of all of its dams, and upgrades or operational modifications have been made to address any deficiencies. This past year, the District completed the seismic evaluation of Maloney Reservoir, and determined that the dam is safe for continued operations. This coming year, an additional evaluation of Camanche dam seismic stability will be performed, as recommended in the FERC Part 12D inspection report.

Open Cut Reservoir Underdrain Instrumentation – The District has installed automated underdrain flow monitoring devices at its open cut reservoirs. The final task is to complete calibration of the instrumentation at Maloney Reservoir.

Briones Tower Modifications – The District is currently designing a seismic retrofit of Briones Tower to ensure its operability after an earthquake. Design was temporarily on hold due to a delay by DSOD. Staff is currently working with DSOD to finalize tower analyses. Environmental permitting is concurrently underway, with construction scheduled for late FY19.

Dam Spillway Interim Repairs and Assessments – After the 2017 spillway emergency at Oroville Dam, the District initiated a planning study of its terminal reservoir dam spillways at Briones, Chabot, San Pablo, and USL reservoirs. In late 2017, staff performed limited repairs of the San Pablo and Chabot Dam spillways. In March, the District retained a consultant to perform detailed condition assessments and evaluation of the spillways, including field investigations and tests, analyses, evaluations, and document review. Inspection work has been completed for all but the Chabot Dam Auxiliary spillway. A draft report of findings was prepared in June. The report will be finalized to include all spillway findings and submitted to DSOD in August 2018 along with a plan for any required remedial work.

Lafayette Tower Modifications – The District has been working for some time to address seismic concerns regarding the Lafayette tower, incorporating input from both DSOD and the City of Lafayette. In late 2017, staff provided an update to the City of Lafayette, and subsequently retained a consultant to thoroughly evaluate alternatives. Planning and public outreach will begin in fall 2018.

Dam Breach Inundation Mapping Project – In compliance with recently passed SB 92, the District is updating dam breach inundation maps for the five terminal reservoirs and 11 of the open cut reservoirs in the District's East Bay service area regulated by DSOD. That work is anticipated to be completed by end of FY19.

FERC Part 12D Safety Inspections and Evaluation Reports – Part 12D of FERC regulations requires that the District's Pardee and Camanche dams be independently inspected and evaluated every five years. The District's IC completed the inspections in September 2017, found no imminent adverse conditions at either facility, and concluded that both facilities were considered safe for continued operations. However, the IC identified actual or potential deficiencies in the facilities' conditions or in the quality or adequacy of maintenance, surveillance, or methods of operation that should be addressed to ensure public safety. Those findings and 48 specific recommendations were submitted to FERC in March 2018. Staff reviewed the 48 recommendations with members of the District's Dam Safety Program Steering Committee and in May 2018, the District submitted a response to the IC's recommendations to FERC, including the plan and schedule for implementing the recommendations over the next seven years until 2025.

The IC recommended the following:

- Updating the District's existing studies on both dams regarding hydrology, hydraulics, slope stability, and seismic loads based on current data and improved methods;
- Performing additional studies for slope stability downstream of spillways, seismic and stability analyses of structures at Pardee Reservoir, and expanded investigation of conditions beneath the Camanche spillway;
- Monitoring, testing, and cleaning the underlying drainage system beneath both spillways;

- Cleaning and inspecting the foundational uplift relief wells at Camanche facilities;
- Performing additional seismic analyses to reassess liquefaction analyses of Camanche dam;
- Performing additional monitoring of specific dam features for early detection of leakages and periodic inspections of the areas downstream of the spillways after use;
- Updating protocols related to dam safety monitoring, assessment, operations, maintenance; and
- Supplementing the current dam safety documentation with results of recent field inspections and investigation summaries.

The District agrees with the majority of the IC's recommendations. Pending FERC's approval of the proposed plan and schedule, many of these recommendations will be addressed through the District's Capital Improvement Program (CIP) using existing and additional funds or by creating new projects. The District's only points of disagreement with the IC were:

- The IC recommended developing a remediation plan to eliminate the possibility of liquefaction of the downstream toe of Camanche Dam. The District believes this concern has been previously addressed. Nevertheless, the District will perform additional seismic analyses with updated parameters to confirm the conclusions of previous analyses. Based upon the results, the District will confer with FERC and the IC to discuss the need for any further mitigation.
- The IC recommended performing additional field and/or laboratory tests to confirm stability characteristics for the west end dike at the former Jackson Creek Spillway at Pardee Reservoir. However, the District believes that the recommended analysis approach is a mismatch for the structural type. The District will document this in a letter report to FERC.

Compliance with the Dam Safety Program

FERC requires that the CDSE routinely assess the District's compliance with the requirements of the Dam Safety Program and conclude that the District's Dam Safety Program is being implemented in both the spirit of dam safety and in accordance with the written Dam Safety Program. To ensure continued program improvement, the District will contract with a qualified dam safety expert to conduct periodic independent audits on a schedule not to exceed five years. The next audit is due March 2021.

Based on the CDSE's knowledge, including a review of dam safety related reports and activities, the CDSE concludes that the District's dams are considered safe for continued operation.

FISCAL IMPACT

Funds from ongoing capital and operating budgets have sufficiently supported the efforts of the Dam Safety Program to date. In response to the FERC Part 12D report recommendations, pending the approval of the proposed plan and schedule submitted to FERC, it is anticipated there may be a need for additional funds; if so, those funds will be requested through the CIP process. The Dam Safety Program Steering Committee reviews budgets as part of its ongoing work and will recommend adjustments as needed.

NEXT STEPS

The Dam Safety Program Steering Committee will continue to meet quarterly. Dam inspections will continue monthly and annual inspections will take place with DSOD and FERC. Progress on the District's various capital projects will continue and progress will be reported in the next annual report.

Staff will continue to work on the inundation mapping project and update of the EAPs to be in compliance with new state regulations and to be better prepared for dam safety related emergencies.

If additional funds are required to support the FERC Part 12D implementation plan, or to address any findings from the spillway assessments, those funds will be requested through the CIP process.

Staff plans to audit its dam safety program on a schedule not to exceed five years in accordance with its Dam Safety Program Guide. The District will contract with a qualified dam safety expert to conduct the periodic independent audit, the first of which will be due March 2021.

ARC:XJI:PKJ

I:\SEC\2018 Board Related Items\Committees 2018\081418 Planning Ctte\E&C Dam Safety Program Annual Report.docx

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: August 9, 2018

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: Andrew L. Lee, Manager of Customer and Community Services

SUBJECT: Port of Oakland Memorandum of Understanding

INTRODUCTION

The District's Regulations Governing Water Service to Customers (Regulations) defines a premises as a parcel of real estate including site improvements. To make this determination, the District takes into consideration such factors as assessor parcel lines, whether the parcel could reasonably be subdivided, whether the parcel is being used for a single enterprise, and whether the parcel is divided by a public or a private street. The Port of Oakland (Port) has land use authority over the Seaport Area (see attached maps) through the charter and legislative grants of state tide and/or submerged lands known as the Tidelands Trust Doctrine. Under this authority, the Port presides over the several large real estate parcels which make up the Seaport Area. A Memorandum of Understanding (MOU) developed between the District and the Port would specify the manner in which the District will provide domestic water and fire water services within the Seaport Area. Staff will provide an overview of the MOU to the Planning Committee on August 14, 2018, including key terms that will ensure all new and expanded water uses within the Seaport Area conform to District Regulations.

DISCUSSION

The Port's active redevelopment of its Seaport Area to expand, improve, facilitate commerce, shipping capacity, and operational efficiency includes leasing portions of the Port-owned land to tenants for the construction of new buildings, storage facilities, and other miscellaneous upgrades. In support of these improvements, the District has received requests from the Port and its tenants to provide new water services and/or allow the use of its existing private fire water system to accommodate new construction and the renovation of existing facilities.

Through the District's communications with the Port, it was discovered that the Seaport Area is composed of several large parcels with multiple structures served by multiple private fire water services crossing parcel lines. Allowing a private fire water service to serve more than one parcel is prohibited by District Regulations, because if a parcel of land is sold to a new owner, that owner could cut off the downstream parcel(s) from fire water service resulting in the other parcel(s) not having adequate, if any, fire water service protection. In light of this discovery, the District and the Port met to explore options to bring the Port's private fire water system into

compliance with District Regulations. The initial recommendation included the installation of new dedicated fire water services and modification of the existing private fire water system to serve individual parcel(s). The Port asserted that modifications to the existing private fire water system would incur significant costs and impact public safety as the existing private fire water system was previously approved by the Fire Marshal. Further, the Port is prohibited from selling or transferring fee title of property within the Seaport Area except in very limited circumstances (typically requiring an act of the state legislature); this reduces the concern of future fire water service termination within the Port.

Given the public safety concerns expressed by the Port and the availability of documentation confirming its unique authority over the Seaport Area, the District and the Port developed an MOU to acknowledge the realities of property boundaries within the Seaport Area and to define "premises" under the Regulations as being an individual leasehold property within the Seaport Area regardless of parcel lines. Under the terms of the MOU, the Port is allowed to continue operation of the existing fire water system in its current configuration to serve one or more leasehold properties within the Seaport Area. To ensure the fire water system is properly managed, the MOU would obligate the Port to be the official applicant for each private fire service within the Seaport Area and hold the Port responsible for execution of all necessary Private Fire Service Agreements.

Another key element of the MOU is the affirmation of the District's authority to govern water use within the Seaport Area, specifically as it relates to new and expanded water use, individual metering for domestic water service, assessment of System Capacity Charges (SCC) and Wastewater Capacity Fees (WCF), and water service review for change in property ownership. The MOU specifies what constitutes a "premises" within the Seaport Area for the purposes of receiving water under the Regulations. In order to support the District's formal review process, the MOU would require the Port or its tenants to submit a Water Service Application and supporting design drawings for any improvement project that includes new and/or expanded water use within the Seaport Area. For those improvements that require the installation of domestic water service or a modification to the size of the meter, the Port or its tenants would be responsible to pay all fees in accordance with the District's Rates and Charges. In the event that the Port sells or transfers fee title of property within the Seaport Area to a third party, the Port must provide the District advance written notice and work with the new property owner to ensure the sold property is in compliance with District Regulations.

Benefits of the MOU

The MOU provides clarity for both entities regarding the Port's responsibility to comply with District Regulations, including the payment of the appropriate SCC and WCF for new and expanded water demand triggered by new development and/or renovation of existing building facilities. Without the MOU, the Port could expand its water use without District review/approval and payment of the applicable SCCs and WCFs. The MOU ensures compliance with the District's Regulations and prevents potential water quality threats to the public due to

expansion of the Port's private water system, similar to the water quality incident that took place at Alameda Point in 2017.

NEXT STEPS

The MOU between the Port and the District will be presented for Board consideration at the August 14, 2018 Board of Directors meeting.

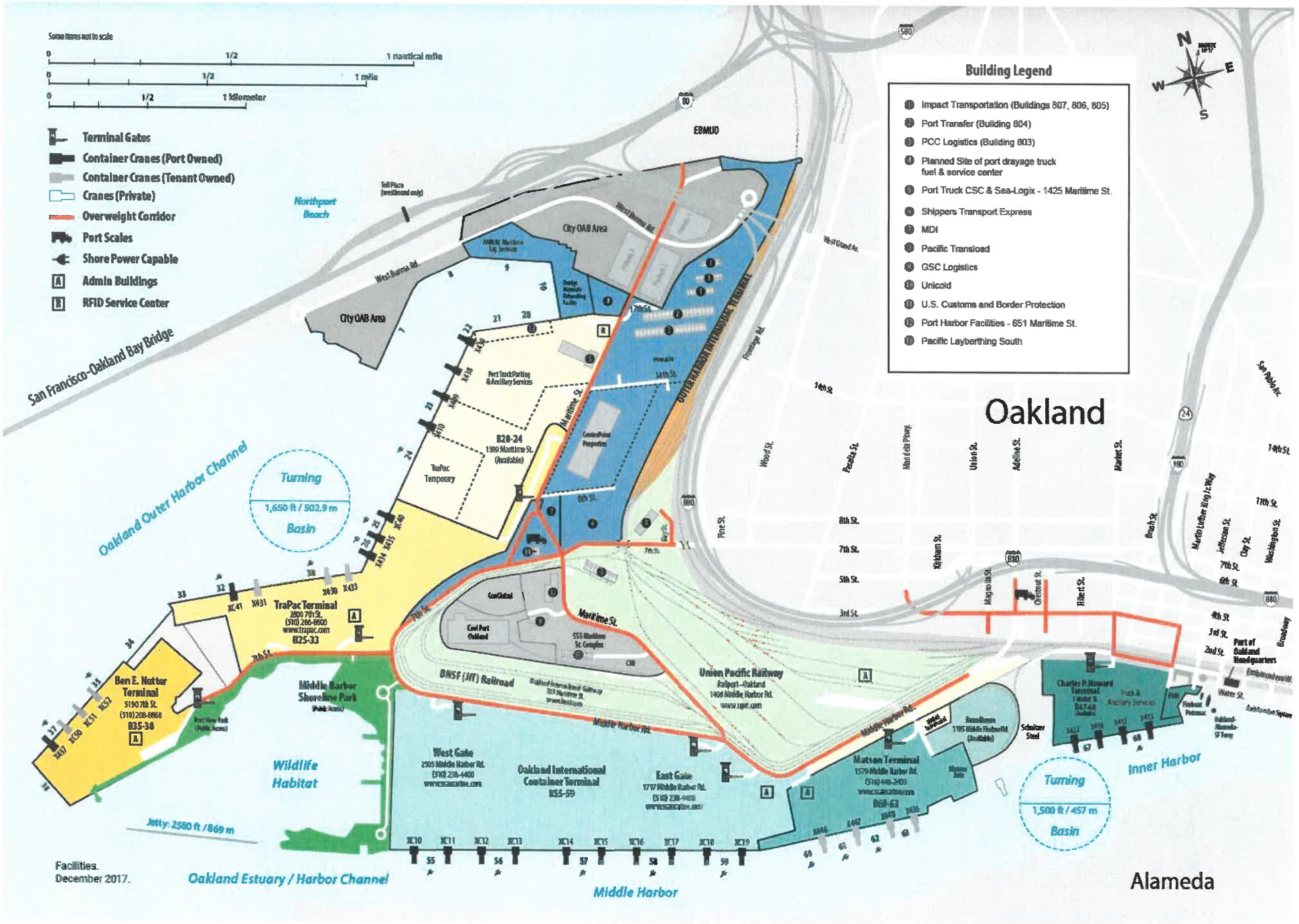
ARC:ALL:dlb

Attachments

I:\Sec\2018 Board Related Items\Committees 2018\081418 Planning Ctte\CCS - Port of Oakland MOU

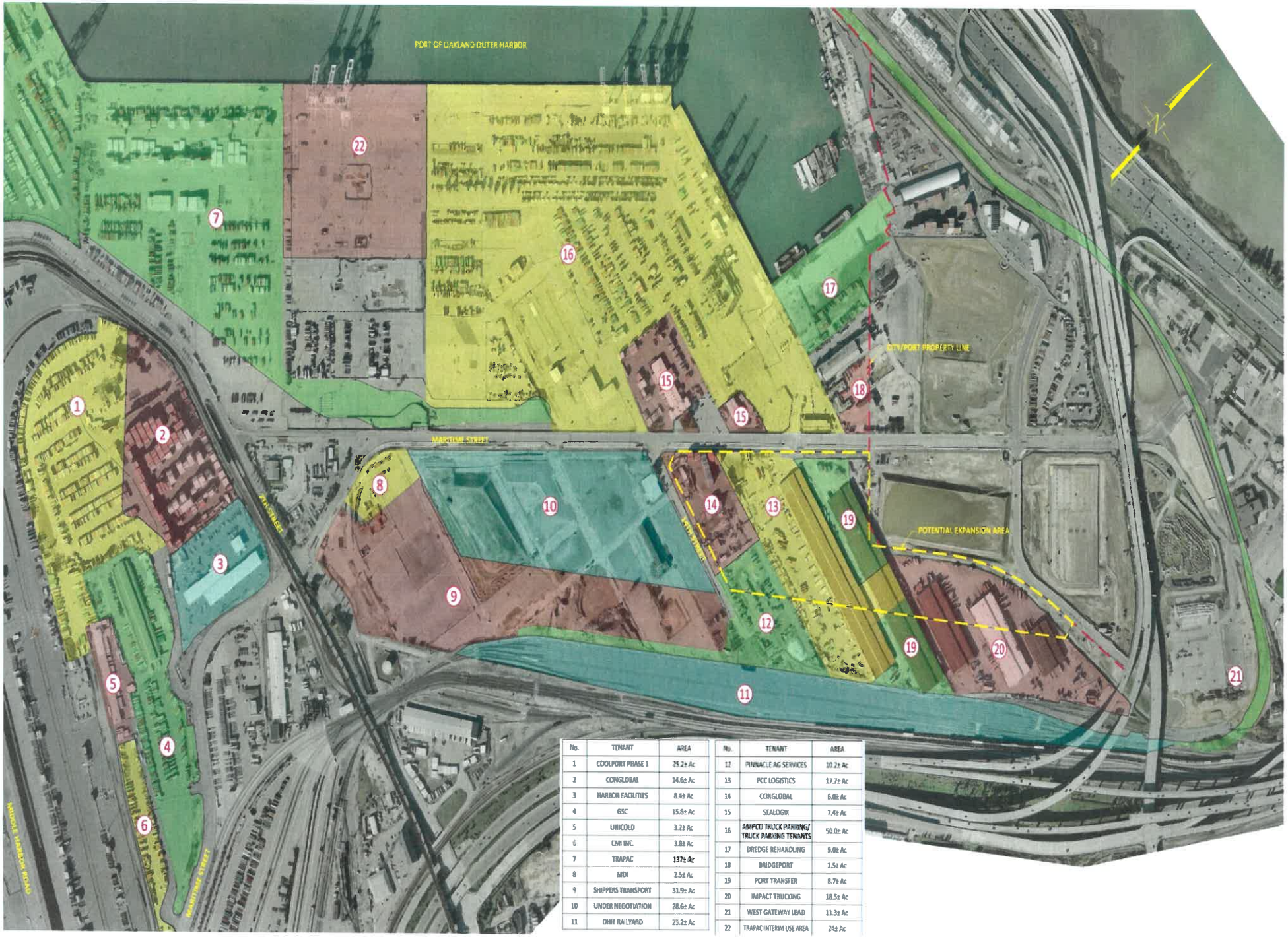
Port of Oakland Seaport Area Site Plan

Attachment 1



Attachment 2

Example of Seaport Area Leasehold Limits



No.	TENANT	AREA
1	COOLPORT PHASE 1	25.2± Ac
2	CONGLOBAL	14.6± Ac
3	HARBOR FACILITIES	8.4± Ac
4	GSC	15.8± Ac
5	UNICOLD	3.2± Ac
6	CMI INC.	3.8± Ac
7	TRAPAC	137± Ac
8	MDI	2.5± Ac
9	SHIPPERS TRANSPORT	33.9± Ac
10	UNDER NEGOTIATION	28.6± Ac
11	OHIT RAILYARD	25.2± Ac

No.	TENANT	AREA
12	PINNACLE AG SERVICES	10.2± Ac
13	PCC LOGISTICS	17.7± Ac
14	CONGLOBAL	6.0± Ac
15	SEALOGIX	7.4± Ac
16	AMPCO TRUCK PARKING/ TRUCK PARKING TENANTS	50.0± Ac
17	DREDGE REHANDLING	9.0± Ac
18	BRIDGEPORT	1.5± Ac
19	PORT TRANSFER	8.7± Ac
20	IMPACT TRUCKING	18.5± Ac
21	WEST GATEWAY LEAD	11.3± Ac
22	TRAPAC INTERIM USE AREA	24± Ac

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: August 9, 2018

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager ARC

FROM: David A. Briggs, Manager of Water Operations DB

SUBJECT: Water Quality Program Semi-Annual Update

INTRODUCTION

This memo provides an update on the District's water quality and ongoing initiatives to ensure delivery of high quality water to customers. Water quality data spans the first half of calendar year 2018, in which the District met all federal and state drinking water standards. A presentation on the Water Quality Program will be made at the August 14, 2018 Planning Committee meeting.

SUMMARY

In the first six months of 2018, the District met all federal and state drinking water standards and met 97 percent of the District's internal goals (4 of 125 were not met). Levels of chlorinated disinfection byproducts exceeded District goals but remained below regulatory levels. The District's water quality goals for n-nitrosodimethylamine (NDMA) and post-filter turbidity at the treatment plants were also exceeded. Major taste and odor events were avoided while ozone facilities at two water treatment plants were offline to support construction. The District also continued its efforts to minimize potential exposure to customers from lead in water. Lead sampling for K-12 schools is ongoing, and staff anticipates no problems completing this program by the regulatory deadline.

DISCUSSION

District Water Quality Goals

The District's internal water quality goals are substantially more stringent than federal or state water quality standards to ensure regulatory compliance and maximize the quality of the District's treated water. In the first half of 2018, the District exceeded four of its water quality goals.

Total Trihalomethanes (TTHMs) and five haloacetic acids (HAA5) are regulated disinfection byproducts (DBPs) that form when chlorine reacts with natural organic matter in the water. For

the first half of 2018, the District's goal was exceeded in 20 out of 32 TTHM samples and 9 out of 32 HAA5 samples. These goals are set at half of the regulatory standards (80 parts per billion, ppb, for TTHMs and 60 ppb for HAA5). Concentrations of these DBPs have steadily decreased since their peak in the second quarter of 2017, and have likely reached their lowest expected values. At no point did the District exceed the regulatory standards. Since early 2017, TTHM concentrations have steadily decreased as raw water quality improved and staff implemented additional DBP monitoring and control measures. For example, the monitoring location with the highest TTHM value decreased from 75 ppb in Q2 2017 to 43 ppb in Q2 2018. Progress continues with the upcoming capital projects to modify treatment at the Orinda and Walnut Creek Water Treatment Plants and to improve raw water quality within San Pablo Reservoir. When complete, these projects should result in consistently lower DBP concentrations.

NDMA can also be a disinfection byproduct and is formed when chloramine reacts with precursor materials in the water. NDMA forms very slowly and it is likely that the long residence times in the distribution system contributed to NDMA formation. Although not required, the District collects quarterly samples from five locations in the distribution system. The District's water quality goal was exceeded in two of the 10 samples. There is no regulatory standard for NDMA; the District's goal is set at the same level as the Public Health Goal for this compound.

Post-filter turbidity level is a performance indicator of the filtration process. The District has five water quality goals for turbidity; one of them was not met during the first half of 2018. Turbidity is measured in the effluent of each individual filter at each plant every minute. Although regulations allow up to 5 percent of all turbidity measurements to exceed the applicable level, the District's goal is for every reading to be lower. In the first half of 2018, there were 16 individual turbidity readings above the goal (0.0002 percent of all readings). Each of the exceedances occurred at the Orinda Water Treatment Plant (WTP). The cause of these periodic filter turbidity spikes at the Orinda WTP is believed to be accumulation of air in the bottom of the filter beds which periodically gets released through the media. This phenomenon began after the first phase of a new filter backwash system was installed in 2017. Temporary modifications have been made to avoid accumulation of air until the rest of the filter backwash system is completed, which expected by the fall 2021.

Lead

The District continues its efforts to minimize customer exposure to lead in drinking water through a variety of programs.

- Samples from customer taps are being collected now in accordance with the United States Environmental Protection Agency's Lead and Copper Rule (LCR). The monitoring period is from June to September 2018. So far, 42 of the required 50 homes have been completed. The 90th percentile lead concentration for these 42 samples is 2.3 parts per billion (ppb), far lower than the regulatory Action Level of 15 ppb.
- The customer sampling voucher program has been successful with approximately 900 customers requesting to participate. Ninety-two percent of the samples analyzed to date

were less than 1 ppb, and only one sample was higher than the Action Level (15 ppb). The District followed up with this customer and provided assistance in determining the source of the lead (a faucet in the house).

- Sampling for lead in schools within the service area was initiated in 2017 and continues in 2018. More than 95 percent of the mandatory public schools (including preschools and charter schools) have been sampled to date with 15 ppb or less in 99.4 percent of the samples and 1 ppb or less in 85.3 percent. District staff made contact with the schools and follow up on any high results. No problems are anticipated in meeting the regulatory deadline of July 1, 2019 for the remainder of the mandatory sampling under AB 746. Under the Permit Amendment, private schools can request voluntary lead sampling until November 1, 2019.
- The Lead Service Lateral (LSL) inventory was completed by the regulatory deadline of July 1, 2018 and submitted to the State Water Resources Control Board. Staff reviewed more than 47,000 paper tap records between 1940 and 1950 when most of the lead service lines were installed, and based on the review, there are no known lead services in use or areas that may have lead service lines in use. The District does have approximately 2,275 galvanized services, which often have short sections of lead piping (or "pig tails") that connect the galvanized pipe to the water main and the meter. Staff will continue to review the remaining paper tap records and will develop a plan to replace the galvanized services by July 1, 2020.

Based on data from LCR compliance monitoring, the customer sampling voucher program, school sampling, and periodic special studies, the District's corrosion control program is effective in minimizing the release of lead from any remaining leaded components.

Taste & Odor/Algal Compounds

No major taste and odor incidents occurred in the first half of 2018 while ozone facilities were offline at the Sobrante and Upper San Leandro WTPs for system upgrades. Use of ozone is the most effective way to reduce taste and odor causing compounds in treated water. Due to an increase in demand in the northern part of the service area, the Sobrante WTP was brought on line on May 5, 2018 prior to completion of the ozone upgrade. During the construction period, source water was monitored closely and various operational changes were made to minimize the possibility of a taste and odor (T&O) event. Plant flows were reduced, gates at the outlet tower were adjusted, and a temporary powdered activated carbon system was installed to enhance T&O control.

In addition to T&O-causing compounds, some algae can produce toxins under certain conditions. The District continues its efforts to monitor algal concentrations in raw water reservoirs, and to collect and analyze samples for toxins as indicated by the algal results. No toxins have been detected in the District's raw water reservoirs.

Nitrification/Chlorine Residuals

Due to the size, complexity and long residence time of water in the District's distribution system, maintaining a high disinfectant residual is a continuous challenge. Extensive staff effort is devoted to collection and analysis of water samples from pipelines and reservoirs throughout the system, as well as follow-up actions when nitrification and low disinfectant residual are detected. The District goal is for the chlorine residual to be 0.5 mg/L or greater in at least 95 percent of monthly samples. This target was met every month in the first half of 2018.

Regulatory updates

In July 2018, the State Board issued two new Notification Levels (NLs) for Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS). These manmade compounds have been used extensively in consumer products such as carpets, clothing, fabrics for furniture, paper packaging for food, and other materials (e.g., cookware) designed to be waterproof, stain-resistant or non-stick. In addition, they have been used in fire retardant foam and various industrial processes.

The District monitored for these compounds as part of the Unregulated Contaminant Monitoring Rule 3 (UCMR3) in 2014 and did not detect them. At that time, the minimum reporting levels for PFOA and PFOS were 20 parts per trillion (ppt) and 40 ppt, respectively. The new NLs for PFOA and PFOS are lower: 14 ppt and 13 ppt, respectively. Due to the protected nature of the watersheds, these compounds are not likely to be detected in the District's water supply and the lower NLs will not likely be triggered. PFOA and PFOS are not included in UCMR4 which will be sampled in 2018 and 2019.

ARC:DAB:sd

Attachment

EBMUD Semi-Annual Water Quality Report August 2018

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis for WQG	Water Quality Goal (WQG)	Status*
USEPA/State Water Quality Regulations										
Primary (Health Standards)										
Inorganic Chemicals										
Aluminum	ug/L	1000	600	50	200			½SMCL	100	Met
Antimony	ug/L	6	20	6				DLR	6	Met
Arsenic	ug/L	10	0.004	2				DLR	2	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/DLR	1	Met
Cadmium	ug/L	5	0.04	1				DLR	1	Met
Chromium (total)	ug/L	50		10				½MCL	25	Met
Cyanide	mg/L	0.15	0.15	0.1				DLR	0.1	Met
Fluoride (source water)	mg/L	2	1	0.1				PHG	1	Met
Hexavalent chromium	ug/L	10	0.02	1				DLR	1	Met
Mercury	ug/L	2	1.2	1				DLR	1	Met
Nickel	ug/L	100	12	10				PHG	12	Met
Nitrate + Nitrite Total (as N)	mg/L	10	10	0.4				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	4				DLR	4	Met
Selenium	ug/L	50	30	5				½MCL	25	Met
Thallium	ug/L	2	0.1	1				DLR	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				DLR	0.5	Met
1,1,2-Trichloroethane (1,1,2-TCA)	ug/L	5	0.3	0.5				DLR	0.5	Met
1,1-Dichloroethane (1,1-DCA)	ug/L	5	3	0.5				½MCL	2.5	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

Compounds highlighted in blue appear more than once in this table.
**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis for WQG	Water Quality Goal (WQG)	Status*
1,2-Dichloroethane (1,2-DCA)	ug/L	0.5	0.4	0.5				DLR	0.5	Met
1,2-Dichloropropane	ug/L	5	0.5	0.5				DLR	0.5	Met
1,3-Dichloropropene (Total)	ug/L	0.5	0.2	0.5				DLR	0.5	Met
1,4-Dichlorobenzene (p-DCB)	ug/L	5	6	0.5				½MCL	2.5	Met
Benzene	ug/L	1	0.15	0.5				DLR	0.5	Met
Carbon Tetrachloride	ug/L	0.5	0.1	0.5				DLR	0.5	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			DLR	3	Met
Monochlorobenzene (Chlorobenzene)	ug/L	70	200	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				DLR	0.5	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	700	5				½MCL	75	Met
Vinyl Chloride (VC)	ug/L	0.5	0.05	0.5				DLR	0.5	Met
Xylenes (Total)	ug/L	1750	1800	1				½MCL	875	Met
cis-1,2-Dichlorethylene (c-1,2-DCE)	ug/L	6	100	0.5				½MCL	3	Met
trans-1,2-Dichloroethylene (t-1,2-DCE)	ug/L	10	60	0.5				½MCL	5	Met
Synthetic Organic Compounds (SOCs)										
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	0.002	0.01				DLR	0.01	Met
2,4,5-TP (Silvex)	ug/L	50	25	1				PHG	25	Met
2,4-D	ug/L	70	20	10				PHG	20	Met
Alachlor (Alanex)	ug/L	2	4	1				DLR	1	Met
Atrazine (Aatrex)	ug/L	1	0.15	0.5				DLR	0.5	Met
Bentazon (Basagran)	ug/L	18	200	2				½MCL	9	Met

Compounds highlighted in blue appear more than once in this table.
**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis for WQG	Water Quality Goal (WQG)	Status*
Benzo(a)pyrene	ug/L	0.2	0.007	0.1				DLR	0.1	Met
Bis(2-ethylhexyl)phthalate (DEHP)	ug/L	4	12	3				DLR	3	Met
Carbofuran	ug/L	18	1.7	5				DLR	5	Met
Chlordane	ug/L	0.1	0.03	0.1				DLR	0.1	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	15	4				½MCL	10	Met
Endothall	ug/L	100	580	45				½MCL	50	Met
Endrin	ug/L	2	1.8	0.1				½MCL	1	Met
Ethylene dibromide (EDB)	ug/L	0.05	0.01	0.02				DLR	0.02	Met
Glyphosate	ug/L	700	900	25				½MCL	350	Met
Heptachlor	ug/L	0.01	0.008	0.01				DLR	0.01	Met
Heptachlor Epoxide	ug/L	0.01	0.006	0.01				DLR	0.01	Met
Hexachlorobenzene	ug/L	1	0.03	0.5				DLR	0.5	Met
Hexachlorocyclopentadiene	ug/L	50	50	1				½MCL	25	Met
Lindane (Gamma BHC)	ug/L	0.2	0.032	0.2				DLR	0.2	Met
Methoxychlor	ug/L	30	0.09	10				DLR	10	Met
Molinate	ug/L	20	1	2				DLR	2	Met
Oxamyl (Vydate)	ug/L	50	26	20				½MCL	25	Met
PCB's	ug/L	0.5	0.09	0.5				DLR	0.5	Met
Pentachlorophenol (PCP)	ug/L	1	0.3	0.2				PHG	0.3	Met
Picloram	ug/L	500	500	1				½MCL	250	Met
Simazine	ug/L	4	4	1				½MCL	2	Met
Thiobencarb	ug/L	70	70	1	1			DLR	1	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 (HAA)	ug/L	60		1				½MCL	30	28%
Total Trihalomethanes (TTHM)	ug/L	80		0.5				½MCL	40	62%
Radionuclides										
Alpha	pCi/L	15		3				½MCL	7.5	Met
Beta	pCi/L			4			50	½ other[1]	25	Met
Radium 226 + 228	pCi/L	5	0.019	1				½MCL	2.5	Met

Compounds highlighted in blue appear more than once in this table.
**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis for WQG	Water Quality Goal (WQG)	Status*
Strontium-90	pCi/L	8	0.35	2				DLR	2	Met
Tritium	pCi/L	20000	400	1000				DLR	1000	Met
Uranium	pCi/L	20	0.43	1				DLR	1	Met
Microbiological										
%Total Coliforms Positive/Mo.	Organisms/100 ml	5%						other[2]	0.5%	Met
Treatment Techniques										
Individual Filter Effluent (IFE) Turbidity	NTU						< 0.10 NTU more than 95% of the time.	Exceed Partnership for Safe Water[5]	< 0.10 NTU more than 99.9% of the time	Met
Individual Filter Effluent (IFE) Turbidity	NTU							Exceed Partnership for Safe Water[5]	Max value 0.2 NTU for inline, 0.3 NTU for others	0.00022%
Filter Startup Turbidity	NTU						Max individual backwash recovery period[3] of 15 minutes.	Partnership for Safe Water	Max individual backwash recovery period[3] of 15 minutes.	Met
Combined Filter Effluent (CFE) Turbidity	NTU						CaSWTR[4]	Exceed Partnership for Safe Water[5]	Max value 0.2 NTU for inline, 0.3 NTU for others	Met
Fluoride added at WTP Effluent	mg/L							other[6]	0.6-1.2	Met
CT Ratio							1	other[7]	>1	Met
SUVA	L/mg-m						2	other[8]	1.8	Met
Lead 90th percentile	ug/L		0.2	5			15	½ AL[9]	7.5	Met
Copper 90th percentile	ug/L		300	50			1300	½ AL[10]	650	Met
Acrylamide							0.05% monomer by wt. dose not to exceed 1 mg/L	other[11]	0.05% monomer by wt. dose not to exceed 1 mg/L	Met

Compounds highlighted in blue appear more than once in this table.
**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis for WQG	Water Quality Goal (WQG)	Status*
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[12]	100	Met
Manganese	ug/L				50	500	15	other[13]	15	Met
Methyl tertiary butyl ether (MTBE)	ug/L	13	13	3	5			DLR	3	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	70	1	1			DLR	1	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[14]	30	Met
Emerging Contaminants										
Inorganic Chemicals										
Boron	ug/L			100		1000		½NL	500	Met
Chlorate	ug/L					800		½NL	400	Met
Organic Chemicals										
1,2,4-Trimethylbenzene	ug/L					330		½NL	165	Met
1,3,5-Trimethylbenzene	ug/L					330		½NL	165	Met
N-Nitrosodi-methylamine [NDMA]	ng/L		3			10		PHG	3	20%
N-Nitrosodiethylamine [NDEA]	ng/L					10		½NL	5	Met
Naphthalene	ug/L					17		½NL	8.5	Met

Compounds highlighted in blue appear more than once in this table.
**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

[1] ½ screening level
[2] 1/10th 5% MCL
[3] Backwash recovery period is the time the turbidity is ≥ 0.10 NTU after a filter is placed in operation following a backwash or filtering to waste.
[4] California Surface Water Treatment Rule (SWTR); combined filter effluent turbidity < 0.3 NTU 95% for conventional plants and 0.2 NTU for in-line filtration plants more than 95% of the time.
[5] <0.10 NTU 95 percent of the time.
[6] Optimal Fluoride Dose (0.7 mg/L) per 2015 United States Public Health Service recommendation
[7] CT ratio of 1 is the minimum for compliance; goal is be greater than or equal to 1 at all times.
[8] Based on operational experience
[9] ½ Action Level
[10] ½ Action Level; compliance based on in-home samples.
[11] USEPA Treatment Technique
[12] Operational experience
[13] Operational experience
[14] Based on historical data

Compounds highlighted in blue appear more than once in this table.
**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*