April 14, 2021

To Municipal Wastewater Dischargers (see Attachment):

By July 1, 2021, please complete the following questionnaire to provide information that describes how your agency will ensure facility operations are not disrupted by existing and future climate conditions. Climate change is shifting precipitation and temperature patterns, exacerbating extreme weather events, and causing sea level rise and groundwater rise. These conditions have significant implications for wastewater collection, treatment, and discharge operations.

This questionnaire is intended to characterize climate change planning efforts within the region's wastewater community. The results will inform our broader efforts to ensure that effective climate change planning is underway throughout the region. These efforts go well beyond the wastewater community. For example, we are seeking similar information regarding industrial and waste management sites.

With this questionnaire, we hope to better understand climate change actions agencies have already undertaken and encourage future actions based on site-specific conditions. We recognize that planning for climate change is complex. For example, in addition to anticipating sea level rise, agencies must consider site-specific information about groundwater elevations, extreme storm events, tides, wave setup and runup, and watershed flows. We consider the Ocean Protection Council's *Sea-Level Rise Guidance* to be an authoritative source supporting planning for sea level rise in California.[1] In May 2020, the California Coastal Commission adopted *Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action*, indicating there is a significant risk of up to 0.8 feet of sea level rise by 2030 and 6.9 feet by 2100 in the San Francisco Bay region.[2] Pending site-specific analyses, we advise starting with a sea level rise target of 3.5 feet by 2050. The California Environmental Protection Agency, including the State Water Resources Control Board, has endorsed such planning principles.

We hope your agency has already started at least some initial planning. You may rely on existing planning to respond to this request. For example, your agency may have

[1] https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf
[2] https://documents.coastal.ca.gov/reports/2020/5/w6g/w6g-5-2020-exhibits.pdf

developed similar information to comply with Senate Bill 379, which requires cities and counties to include climate adaptation and resiliency strategies in their general plans. If so, you may simply cite and summarize these materials to the extent that they are relevant. We also appreciate that many agencies recently contributed to the Bay Area Clean Water Agencies' *Nutrient Reduction Study*, which compiled preliminary sea level rise information (see Figures 4 and 5 of Attachment C of the report, shown below).[3]

In completing this questionnaire, please consider all wastewater facilities for which your agency is responsible. For example, if you operate two treatment plants, you may complete just one questionnaire that covers both. Also, you need not respond on behalf of satellite collection systems. We will address them separately. Brief answers are acceptable, as indicated by the box sizes in the questionnaire, particularly if you are able to provide hyperlinks for readily available documents. You may also attach additional pages as necessary.

Finally, please remember to update, as necessary, your agency's contingency plan, spill prevention plan, operation and maintenance manual, and wastewater facilities status report in accordance with your NPDES permit (Attachment G sections I.C and I.D) to reflect your response to this request. Likewise, remember to describe any anticipated facility modifications in future reports of waste discharge.

We appreciate your cooperation. If you have any questions, please contact Robert Schlipf at robert.schlipf@waterboards.ca.gov.

Sincerely,

Bill Johnson

Bill Johnson
Chief, NPDES Wastewater Division

[3] https://bacwa.org/wp-content/uploads/2018/06/BACWA_Final_Nutrient_Reduction_Report.pdf

CLIMATE CHANGE QUESTIONNAIRE

1. **Projections and Planning Targets**. What guidance (e.g., Ocean Protection Council guidance), projections, and assumptions is your agency using to anticipate the effects of climate change? Is your agency using a specific sea level rise projection for facility planning? If so, what specific increment of sea level rise or flood elevation is your agency planning for, what is the associated time frame (e.g., 3.5 feet by 2050), and what site-specific information did your agency include in this analysis (e.g., 100 year flood recurrence interval), if known?

Response

2. **Vulnerability Assessment**. Assess the vulnerability of your agency's collection, treatment, and discharge systems to the following: (1) sea level rise, (2) groundwater rise, (3) changing climate and weather, and (4) power outages and wildfires.

   a. ***Sea Level Rise***. If your agency's facilities are currently within the FEMA 100-year flood plain and not protected by a FEMA-accredited levee, explain how your agency manages its <u>existing</u> flood risks (e.g., protective measures already in place, planned, or proposed). We understand that the treatment plants listed in Table 1 (marked green and yellow on Figures 4 and 5 of the *Nutrient Reduction Study*) are probably not susceptible to existing flood risks; in these cases, your response may be particularly brief and may be limited to collection and discharge systems. If your agency's treatment plant is not listed in Table 1 but is also protected by a FEMA-accredited levee or not within the FEMA 100-year flood plain, simply explain the basis for this conclusion.

Response

If your agency's facilities are currently within the FEMA 100-year flood plain and not protected by a FEMA-accredited levee or if your facilities are projected to be affected by sea level rise within 50 years, explain how your agency intends to manage future flood risks over a 50-year time horizon (e.g., ongoing planning efforts and protective measures already in place, planned, or proposed). If your agency has not yet established a plan, explain its process and timeline for doing so in your response to item 3c, below. We understand that, with the exception of South San Francisco and San Bruno, the treatment plants listed in Table 1 are probably not susceptible to flooding related to sea level rise within 50 years. In these cases, responses may be limited to collection and discharge systems. If your agency's treatment plant is not listed in Table 1 but you believe it meets the same criteria, simply explain the basis for this conclusion.

Response

b. ***Groundwater Rise***. Groundwater rise is becoming an issue of concern. For more information, see publications from the San Francisco Estuary Institute (*Shallow Groundwater Response to Sea Level Rise*), Hummel et al. (*Sea Level Rise Impacts on Wastewater Treatment Systems Along the US Coasts*), and Plane et al. (A Rapid Assessment Method to Identify Potential Groundwater Flooding Hotspots as Sea Levels Rise in Coastal Cities).[4] If your agency's facilities are susceptible to flooding related to groundwater rise or if its facilities are projected to be affected by groundwater rise within 50 years, explain how it intends to manage future flood risks over a 50-year time horizon (e.g., ongoing planning efforts and protective measures already in place, planned, or proposed). If your agency has not yet established a plan, explain its process and timeline for doing so in your response to item 3c, below.

Response

[4] https://www.sfei.org/projects/shallow-groundwater-response-sea-level-rise; https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017EF000805 (Hummel, M., M. Berry, and M. Stacey. 2018. Sea Level Rise Impacts on Wastewater Treatment Systems Along the US Coasts. Earth's Future 6 (4): 622–633); https://www.mdpi.com/2073-4441/11/11/2228/htm (Plane, E., K. Hill, and C. May. 2019. A Rapid Assessment Method to Identify Potential Groundwater Flooding Hotspots as Sea Levels Rise in Coastal Cities. Water 11, 2228).

c. ***Changing Climate and Weather***. Assess how increased temperatures, greater rainfall intensity, and longer and drier summers may affect your agency's collection, treatment, and discharge systems. For example, under drought conditions, wastewater treatment plants are expected to face numerous challenges related to conveying and treating wastewater, as described in *Adapting to Change: Utility Systems and Declining Flows*.[5] Explain how your agency intends to manage future risks. If your agency has not yet established a plan, explain its process and timeline for doing so in your response to items 3b and 3c, below.

Response

d. ***Power Outages and Wildfires***. Assess how increasing stress on the power grid from more extreme heat waves and related power shutoffs, or from power shutoffs to your agency's service area to prevent wildfires, may affect critical equipment and any need for additional back-up power. Explain how your agency intends to manage future risks. If your agency has not yet established a plan, explain its process and timeline for doing so in your response to items 3b and 3c, below.

Response

3. **Adaptation Strategies**. Based on the vulnerabilities of your agency's collection, treatment, and discharge systems, identify mitigation and control measures needed to maintain, protect, and improve its wastewater infrastructure under existing and possible future conditions.

[5] California Urban Water Agencies. 2017. *Adapting to Change: Utility Systems and Declining Flows*. https://www.cuwa.org/pubs/2018/1/10/uhjemzug04iar61oijljp8ovn67zqb

a. ***Regional and Sub-regional Collaboration***. Explain how your agency plans to work directly with regional stakeholders (e.g., Caltrans, PG&E, flood control agencies, etc.) and neighboring communities to address climate change impacts in its area. A collaborative approach may best provide cost-effective ways to manage sea level rise and groundwater rise, while ensuring that the actions of one party do not adversely affect the adaptation plans of other parties. For example, we strongly encourage collaboration within Operational Landscape Units identified in the *San Francisco Bay Shoreline Adaptation Atlas*.[6]

Response

b. ***Near-Term Measures***. Identify any critical mitigation and control measures necessary within the near-term (e.g., within the next 5 to 10 years). Does your agency's capital improvement plan account for these measures? If not, how does your agency intend to pursue them?

Response

c. ***Long-Term Design Modifications and Improvements***. Explain how infrastructure identified as vulnerable to climate change impacts will need to be modified in the future. For example, it may be necessary to relocate critical equipment above projected flood levels, waterproof facilities at risk of flooding, or construct levees or seawalls. As sea level rises, increasing pumping capacity may also be necessary to ensure your agency can discharge treated wastewater under an increased hydraulic pressure head. If planning is still underway, what options are under consideration?

[6] https://www.sfei.org/adaptationatlas

Response

d. ***Monitoring.*** Climate change may trigger new monitoring needs for your agency's collection, treatment, and discharge systems. For example, increased residence times in the collection system could cause corrosion if wastewater turns septic, and increased salinity levels could impair your ability to beneficially reuse treated wastewater. Has your agency already installed or planned new monitoring (e.g., salinity, conductivity, or hydrogen sulfide monitoring) at its treatment plant or collection system to respond to potential climate change-related impacts? What new monitoring does your agency anticipate needing to implement in the future?

Response

e. ***Emergency Response Planning.*** Has your agency updated its contingency plan, emergency response plan, or hazard mitigation plan to incorporate flood risks associated with sea level rise and groundwater rise? If so, briefly describe the updates.

Response

f. ***Financing****.* Has your agency estimated the cost of mitigation and control measures necessary to respond to climate change? If so, describe your agency's efforts to finance these improvements, including rate increases, grants, and loans.

Response

TABLE 1
Facilities Protected by FEMA-accredited Levee or
Not within FEMA 100-year Flood Plain

American Canyon	Novato Sanitary District
Delta Diablo	Petaluma
Dublin-San Ramon Services District	Richmond Municipal Sewer District
East Bay Municipal Utility District	San Francisco (Southeast Plant)
Fairfield Suisun Sewer District	San Mateo
Hayward	Sewerage Agency of Southern Marin
Las Gallinas Valley Sanitary District	Silicon Valley Clean Water
Livermore	Sonoma Valley County Sanitary District
Mt. View Sanitary District	South San Francisco and San Bruno

Note: This list is based on existing Water Board records but is incomplete. If your agency should be listed here, please explain in response to Question 1a and cite documentation.

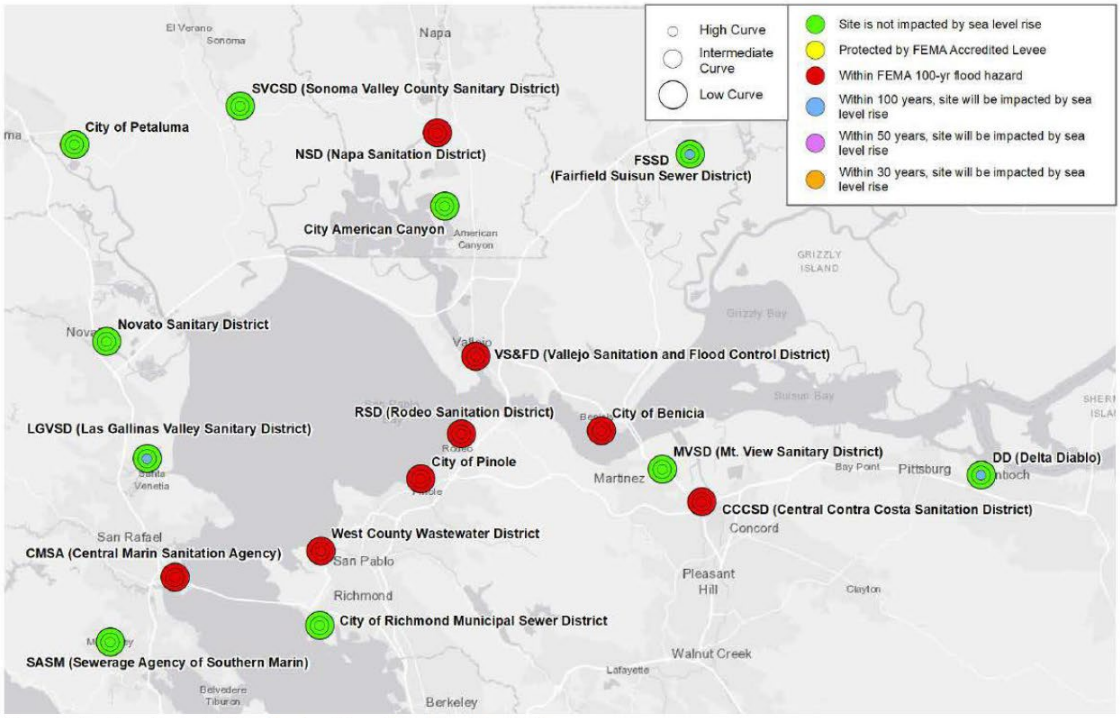

Figure 4 – Sea Level Rise Evaluation Results, North Bay

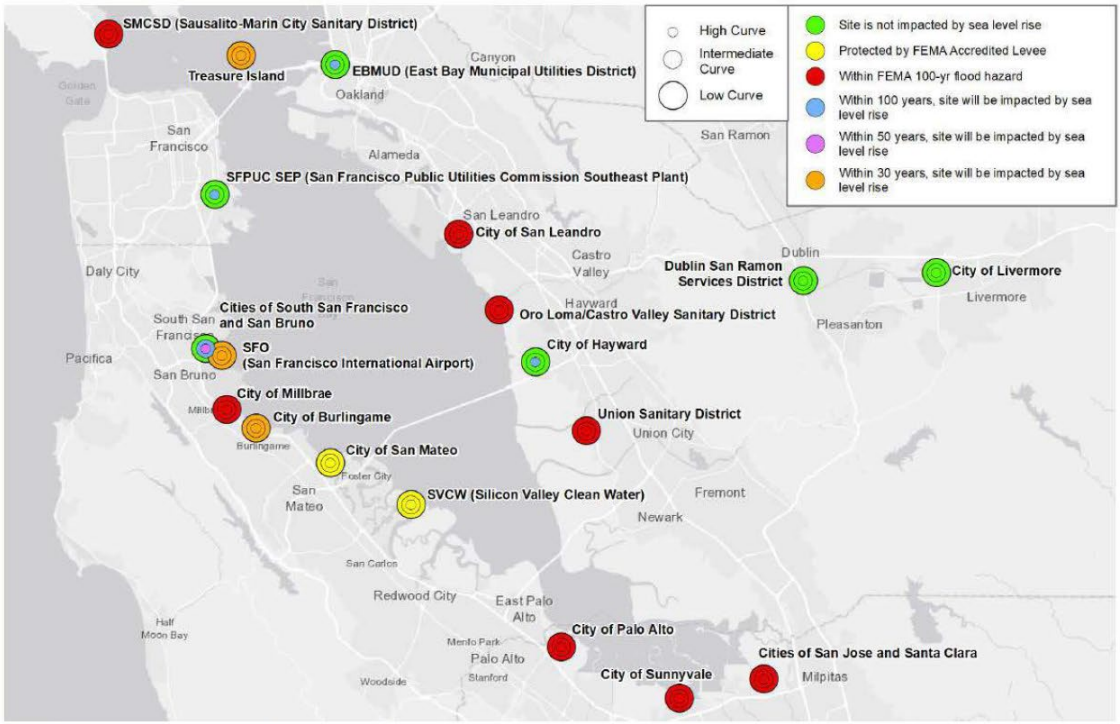

Figure 5 – Sea Level Rise Evaluation Results, South Bay

Attachment

Discharger	Contact	Title	Email Address
American Canyon, City of	Felix Hernandez	Maintenance and Utilities Director	fhernandez@cityofamericancanyon.org
Benicia, City of	Jeff Gregory	WWTP Superintendent	JGregory@ci.benicia.ca.us
Burlingame, City of	Robert Spankowski	Operations Manager	robert.spankowski@veolia.com
Calistoga, City of	Derek Rayner	Public Works Director	drayner@ci.calistoga.ca.us
Central Contra Costa Sanitation District	Jean Marc Petit	Director of Engineering and Technical Services	jmpetit@centralsan.org
Central Marin Sanitation Agency	Jason Dow	General Manager	jdow@cmsa.us
Crockett Community Services District, Port Costa Sanitary Department	James Barnhill	Sanitary Department Manager	jbarnhill@town.crockett.ca.us
Delta Diablo	Amanda Roa	Environmental Programs Manager	amandar@deltadiablo.org
Dublin San Ramon Services District	Jeff Carson	Operations Manager	carson@dsrsd.com
East Bay Dischargers Authority	Jacqueline Zipkin	General Manager	jzipkin@ebda.org
East Bay Municipal Utility District	Eileen White	Director of Wastewater	eileen.white@ebmud.com
Fairfield-Suisun Sewer District	Meg Herston	Director of Environmental Services	mherston@fssd.com
Hayward, City of (EBDA Member)	David Donovan	WPCF Manager	David.Donovan@hayward-ca.gov
Las Gallinas Valley Sanitary District	Mel Liebmann	Plant Manager	mliebmann@lgvsd.org
Livermore, City of	Jimmie Truesdell	Operations Manager	jltruesdell@cityoflivermore.net
Marin County (Tiburon and Paradise Cove), Sanitary District No. 5 of	Tony Rubio	Chief Plant Operator	trubio@sani5.org
Millbrae, City of	Craig Centis	Deputy Director of Public Works	CCentis@ci.millbrae.ca.us
Mt. View Sanitary District	Stacey Ambrose	Environmental Services Manager	sambrose@mvsd.org
Napa Sanitation District	Jim Keller	Operations Services Director	jkeller@napasan.com

North San Mateo County Sanitation District	Greg Krauss	Chief of Operations	gkrauss@dalycity.org
Novato Sanitary District	Sandeep Karkal	General Manager - Chief Engineer	sandeepk@novatosan.com
Oro Loma Sanitary District (EBDA Member)	Jason Warner	General Manager	jwarner@oroloma.org
Pacifica, City of	Louis Sun	Deputy Director of Public Works-Wastewater	sunl@ci.pacifica.ca.us
Palo Alto, City of	Karin North	Watershed Protection Manager	Karin.north@cityofpaloalto.org
Petaluma, City of	Matt Pierce	Operations Supervisor	mpierce@ci.petaluma.ci.us
Pinole-Hercules Water Pollution Control Plant	Mike Howe	Operations Supervisor	mhowe@ci.pinole.ca.us
Richmond, City of (West County Agency member)	Joanne Le	Environmental Services Manager	Joanne_Le@ci.richmond.ca.us
Rodeo Sanitary District	Steve Beall	District Manager	bealls@rodeosan.org
San Francisco International Airport	Leroy Sisneros	Director of Facilities	leroy.sisneros@flysfo.com
San Francisco Public Utilities Commission	Amy Chastain	Regulatory Manager, Wastewater Enterprise	AChastain@sfwater.org
San Jose, City of	Eric Dunlavey	Environmental Program Manager	Eric.Dunlavey@sanjoseca.gov
San Leandro, City of (EBDA member)	Justin Jenson	Plant Manager	jjenson@sanleandro.org
San Mateo, City of	Azalea Mitch	Public Works Director	amitch@cityofsanmateo.org
Sausalito/Marin City Sanitary District	Omar Arias-Montez	Operations Superintendent	omar@smcsd.net
Sewerage Agency of Southern Marin	Mark Grushayev	Wastewater Treatment Manager	mgrushayev@cityofmillvalley.org
Sewer Authority Mid-Coastside	Kishen Prathivadi	General Manager	kishen@samcleanswater.org
Silicon Valley Clean Water	Monte Hamamoto	Chief Operating Officer	mhamamoto@svcw.org
Sonoma County Water Agency	Kevin Booker	Principal Engineer	kevin.booker@scwa.ca.gov
South San Francisco, City of	Brian Schumacker	Plant Superintendent	brian.schumacker@ssf.net
St. Helena, City of	Clayton Church	Acting Public Works Director/Operations Manager	cchurch@cityofsthelena.org
Sunnyvale, City of	Cameron Kostigen Mumper	Environmental Engineering Coordinator	ckostigenmumper@sunnyvale.ca.gov

Treasure Island	Liz Hirschhorn	Assistant Development Program Manager	liz.hirschhorn@sfgov.org
Union Sanitary District (EBDA Member)	Armando Lopez	Treatment and Disposal Services Manager	armandol@unionsanitary.ca.gov
Vallejo Flood & Wastewater District	Jenifer Harrington	Environmental Services Director	jharrington@vsfcd.com
West County Wastewater District (West County Agency member)	Joe Neugebauer	Environmental Programs Manager	jneugebauer@wcwd.org
Yountville, Town of	Donald Moore	Utility Operations Manager	dmoore@yville.com