



COVID-19 September Update

September 29, 2021, 11:00 am – 12:30 pm




Arvind Akela PE, CEM, LEED AP

CWEA PRESIDENT

ENGINEERING & ENVIRONMENTAL SERVICES DIRECTOR
SILICON VALLEY CLEAN WATER





CWEA, its Board members and volunteers are not responsible for the actions of speakers or the content of their sessions. No endorsement is implied or given of any persons or their philosophies, ideas or statements; nor of any products or processes; nor of any organizations or companies who volunteer to serve as speakers in educational programs.

For reporters: all speakers today are off the record.

UPCOMING EVENTS

events.cwea.org

NORTHERN SAFETY DAY

OCTOBER 20
Woodland, CA
(Yolo County Fairgrounds)

BIOSOLIDS & RENEWABLE ENERGY SEMINARS

OAKLAND: Oct. 13
COSTA MESA: OCT. 14



7677 Oakport Street Suite 1030 Oakland CA 94621
510.382.7800 | www.cwea.org



Greg Kester

**MODERATOR
DIRECTOR OF RENEWABLE RESOURCE PROGRAMS
CASA**





Scott Olesen

**COMPUTATIONAL EPIDEMIOLOGIST
BIOBOT ANALYTICS**



Biobot Analytics

Interpreting California's Covid-19 wastewater monitoring data: Effects of vaccination and Delta

29 September 2021

California Wastewater Based Surveillance Committee

Does widespread vaccination or the Delta variant change interpretation of Covid-19 wastewater data?

Do any of the COVID-19 vaccines authorized for use in the United States shed or release any of their components?

No. Vaccine shedding is the term used to describe the release or discharge of any of the vaccine components in or outside of the body. Vaccine shedding can only occur when a vaccine contains a weakened version of the virus. None of the vaccines authorized for use in the U.S. contain a live virus. mRNA and viral vector vaccines are the two types of currently authorized COVID-19 vaccines available.



 Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

MEDPAGE TODAY*

Special Reports > Exclusives

What's This About Delta Being 1,000 Times More Infectious?

— Here's where that frightening figure comes from

by [Kristina Fiore](#), Director of Enterprise & Investigative Reporting, MedPage Today
July 23, 2021

The wastewater-case (WC) ratio formalizes this question

$$\text{WC ratio} = [\text{wastewater SARS-CoV-2 concentration}] / [\text{\# of reported Covid-19 cases}]$$

WC ratio varies depending on virus biology and quality of case ascertainment:

- Lower per capita virus shedding → lower WC
- Less access to testing → higher WC
- More infections are asymptomatic → higher WC

Potential effects on wastewater data interpretation:

- Vaccination → lower per capita shedding → same wastewater signal means more disease activity
- Delta → higher per capita shedding → same wastewater signal means more disease activity

WC ratios can help estimate case undercounting

$$\frac{[\text{Viral conc. in WW}] = [\text{Infected population}] \times [\text{Daily per capita stool production}] \times [\text{Viral conc. in infected stool}]}{[\text{Total daily wastewater flow}]}$$

E.g., in Boston during spring 2020:

- Given known values, researchers estimated the unknown (% of people infected)
- Suggested that true cases were **50-200x higher than reported case rates**
- This result is comparable to but somewhat more extreme than results suggested from excess death and seroprevalence surveys

Case estimates using WC ratio date back decades

In 1947, John Melnick used the WC ratio to estimate that **99% of poliovirus infections were asymptomatic** (i.e., no paralysis).

POLIOMYELITIS VIRUS IN URBAN SEWAGE IN EPIDEMIC AND IN NONEPIDEMIC TIMES¹

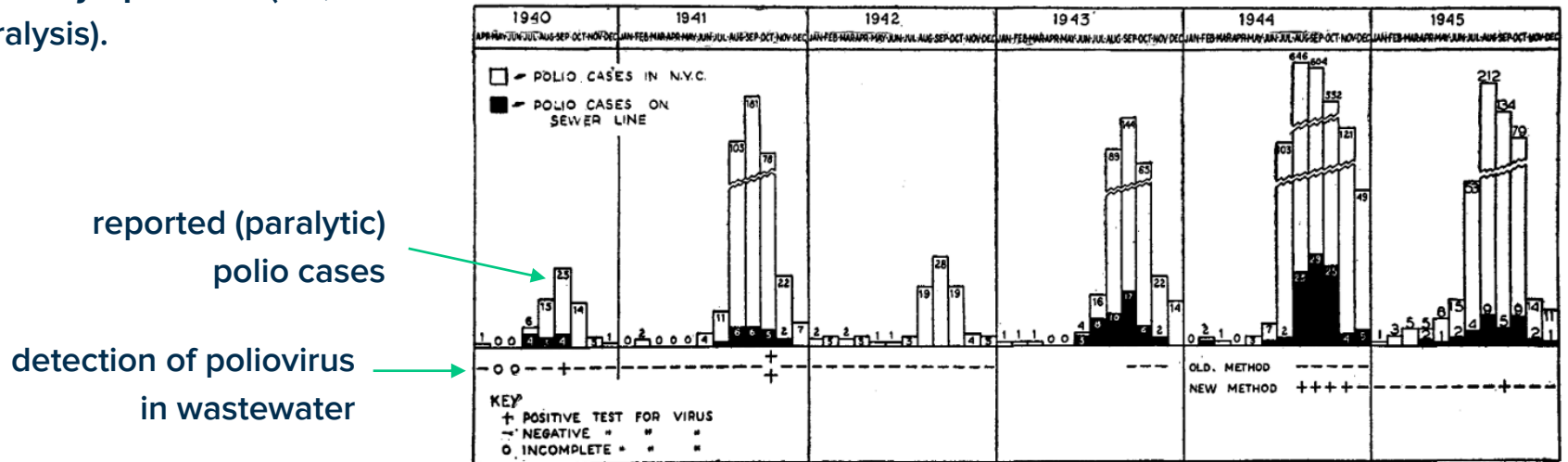


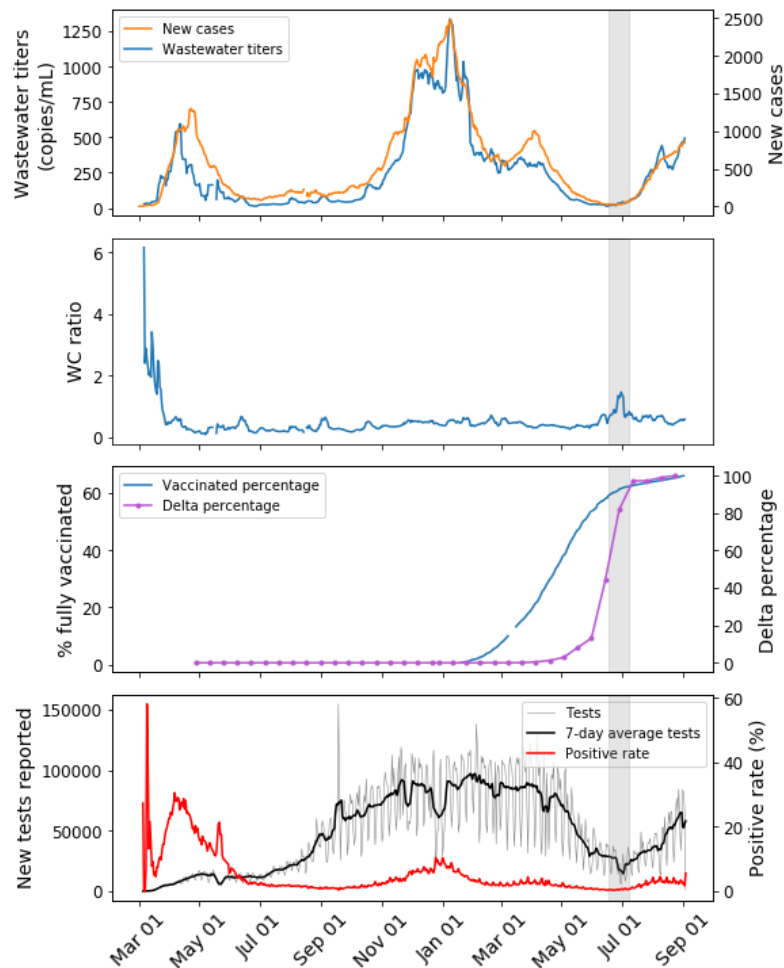
FIGURE 2. Results of tests for virus in Manhattan sewage in relation to manifest cases in the area and in all of New York City.

WC ratios have varied through the pandemic

Unpublished analysis from Amy Xiao, MIT

E.g., in Boston:

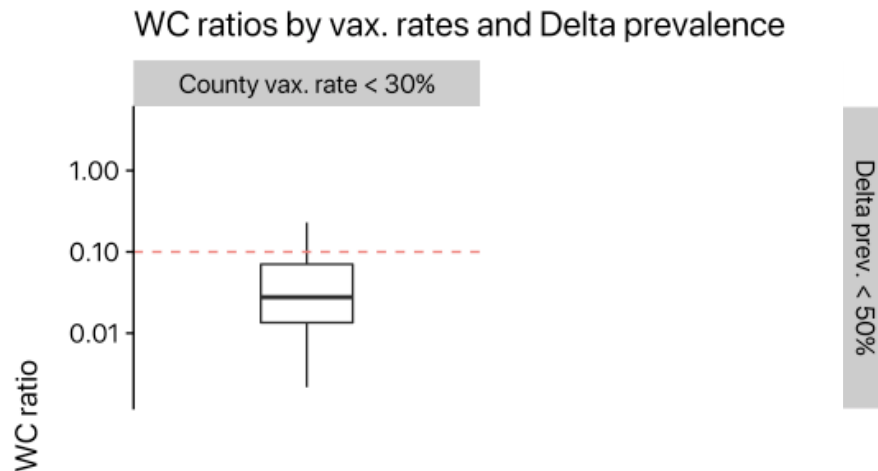
- WC ratio was very high in May 2020, likely from case undercounting
- No apparent change in WC ratio during vaccination
- WC ratio had a bump during the Delta surge, likely due to low testing numbers
- WC ratio may now be slightly ($\sim 3x$) higher than pre-Delta



Data from California sites suggest WC ratio has not changed dramatically

Median WC ratios across California samples processed by Biobot:

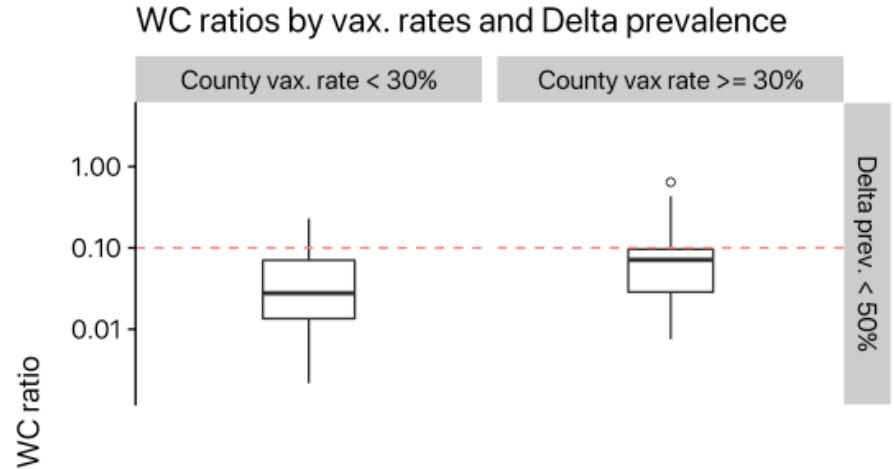
- Pre-vax. & pre-Delta: 0.03 (0.01-0.07)



Data from California sites suggest WC ratio has not changed dramatically

Median WC ratios across California samples processed by Biobot:

- Pre-vax. & pre-Delta: 0.03 (0.01-0.07)
- Post-vax. & pre-Delta: 0.07 (0.03-0.10)

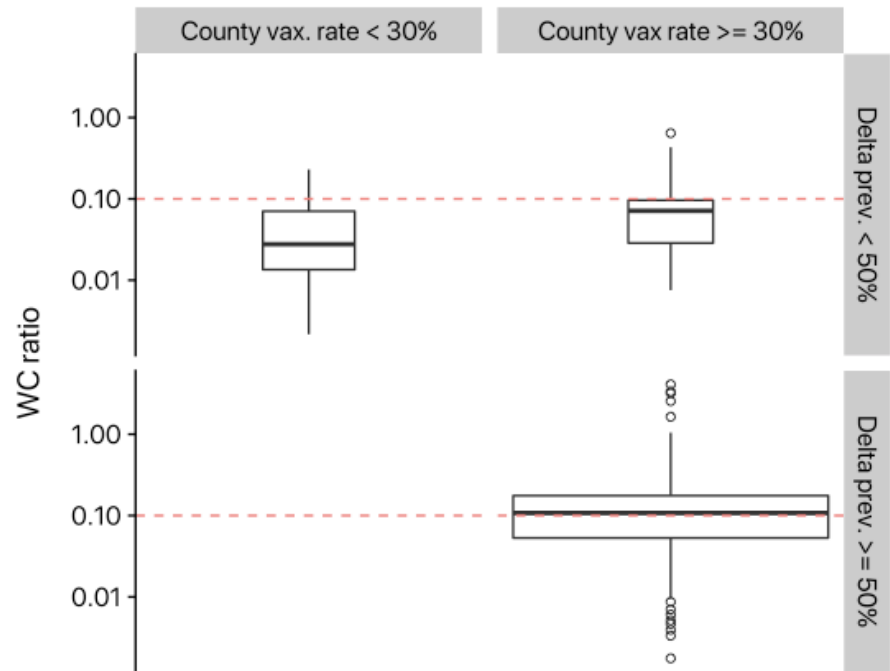


Data from California sites suggest WC ratio has not changed dramatically

Median WC ratios across California samples processed by Biobot:

- Pre-vax. & pre-Delta: 0.03 (0.01-0.07)
- Post-vax. & pre-Delta: 0.07 (0.03-0.10)
- Post-Delta: 0.11 (0.05 to 0.18)

WC ratios by vax. rates and Delta prevalence

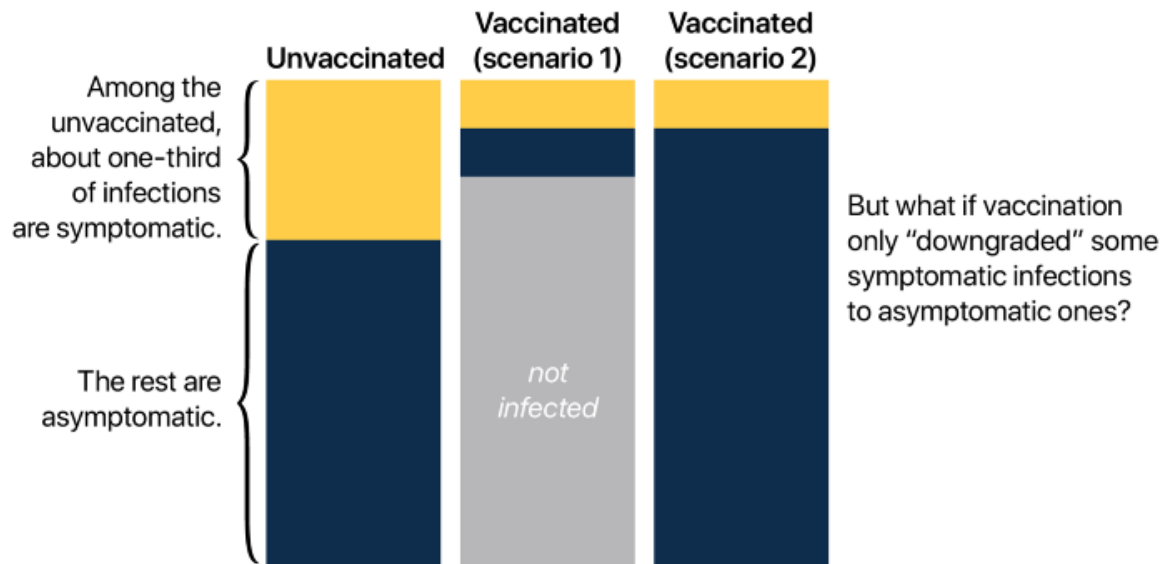


Key take-away: Data interpretation has not substantially changed

- The primary effect of vaccination and Delta are in changing disease activity: vaccination → fewer cases, Delta → more cases
- The WC ratio encodes: for the same disease activity level, will the wastewater signal be different?
- Zero or minimal change in WC ratio (<2x) due to vaccination
- Zero or minimal change in WC ratio (<3x) due to sweep of Delta

WC ratios might give hints about vaccine efficacy

How many people get what kind of infection?



Vaccination reduces the risk of symptomatic disease, and it also seems to outright prevent many infections.

Adapted from illustrations by Dr. Natalie Dean

A microscopic image of biological tissue, possibly a cross-section of an organ, with a blue overlay. The tissue shows various cellular structures and patterns, including what appears to be a central duct or vessel. The blue overlay is semi-transparent, allowing the underlying tissue details to be visible.

Thank you.

Scott Olesen, PhD

Computational Epidemiologist

olesen@biobot.io

www.biobot.io



Eileen M. White

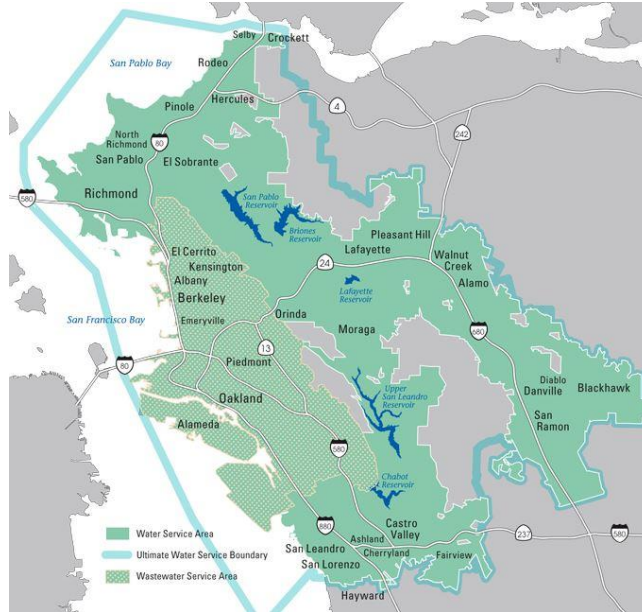
**DIRECTOR OF WASTEWATER
EAST BAY MUNICIPAL UTILITY DISTRICT**

SARS-CoV-2 Monitoring in Raw Wastewater & Safe Return to Workplace Plan



September 29, 2021

Introduction to EBMUD



BY THE NUMBERS

2,000 Total Employees

Drinking Water

1.4 Million People

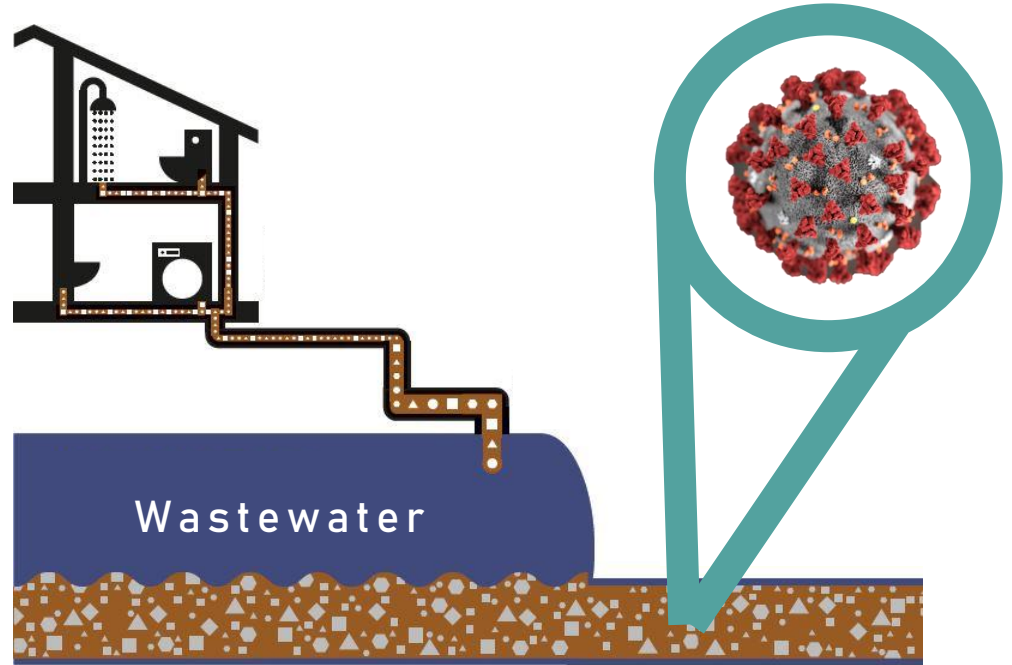
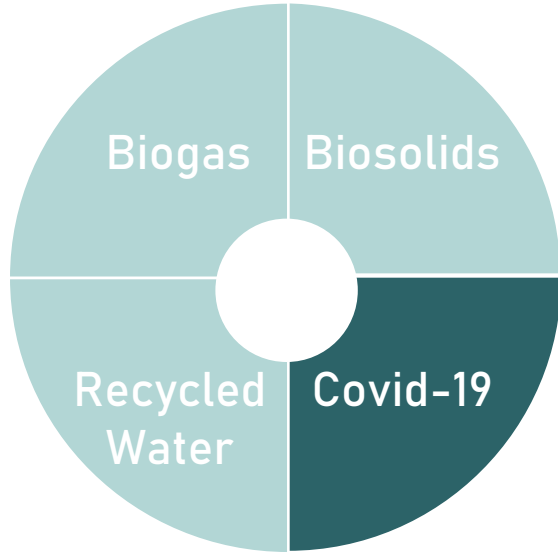
332 Square-Mile Service Area

Wastewater
740 Thousand People

88 Square-Mile Service Area

Wastewater is a Valuable Resource

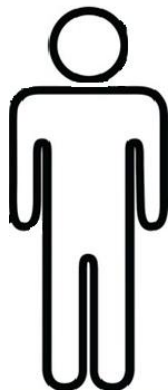
Types of Resources



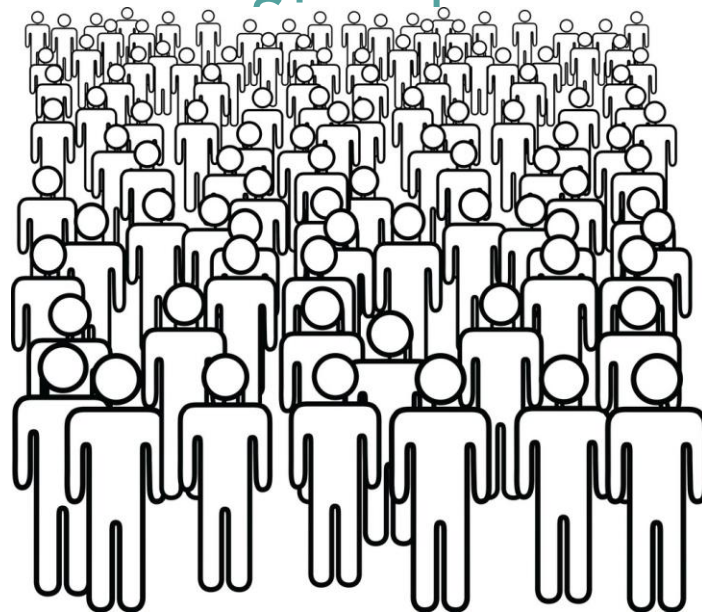
The Impact of One Test

Conventional

T i n g

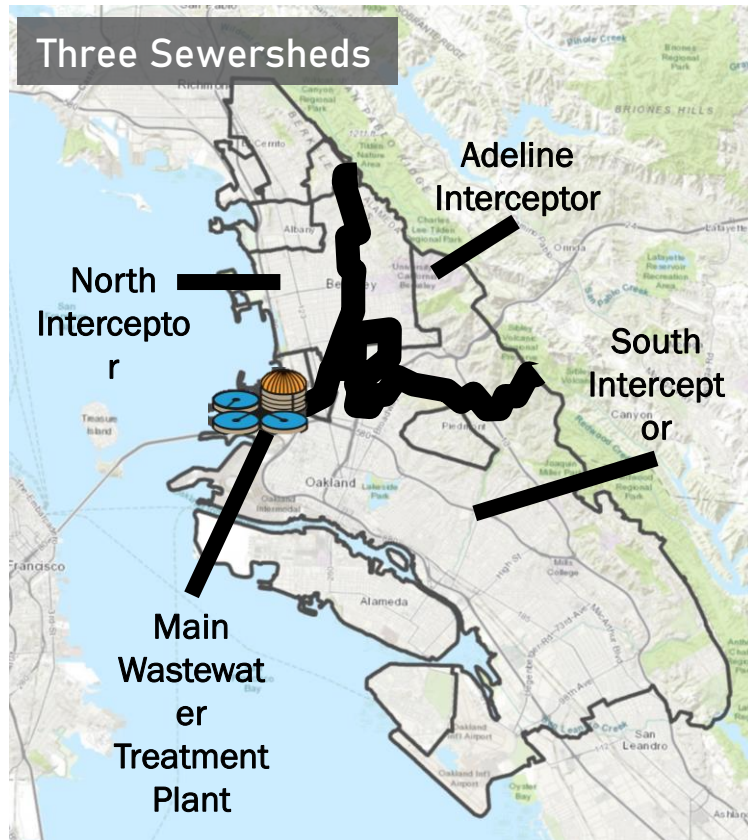


Sewage



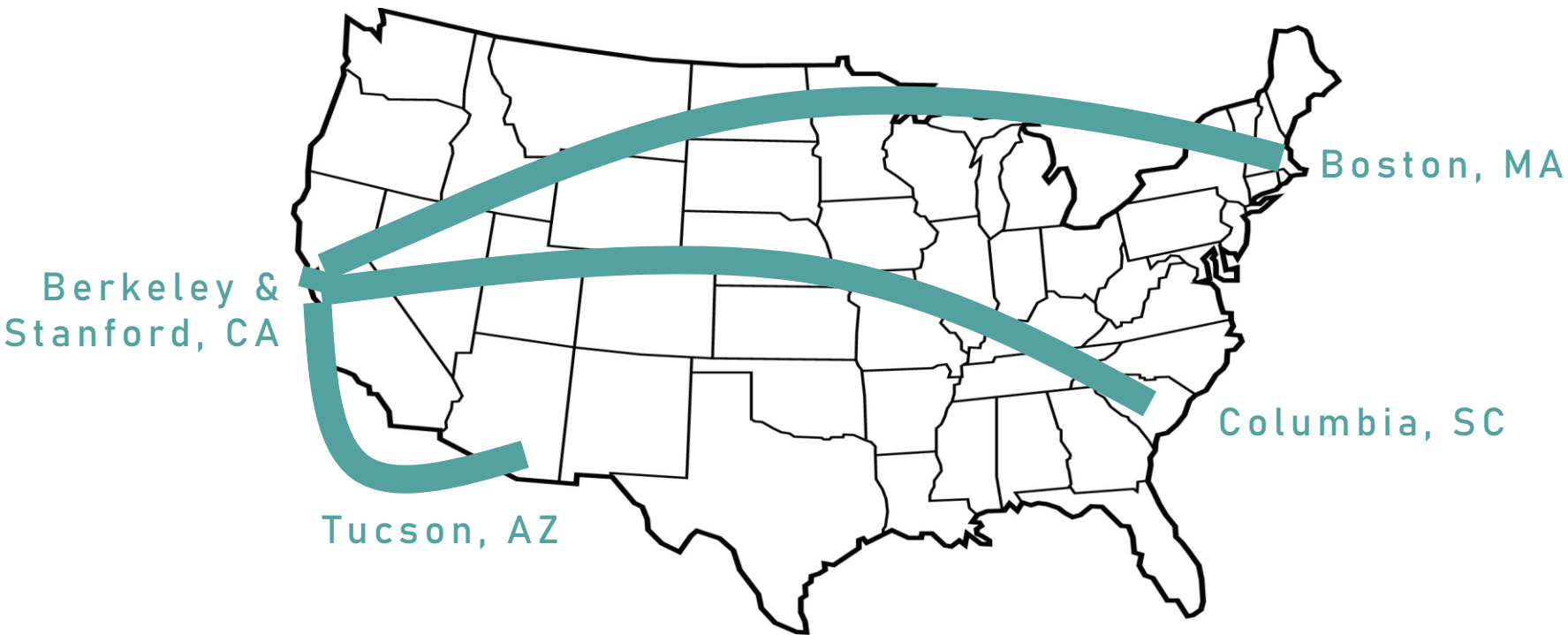
SAMPLING

Sampling



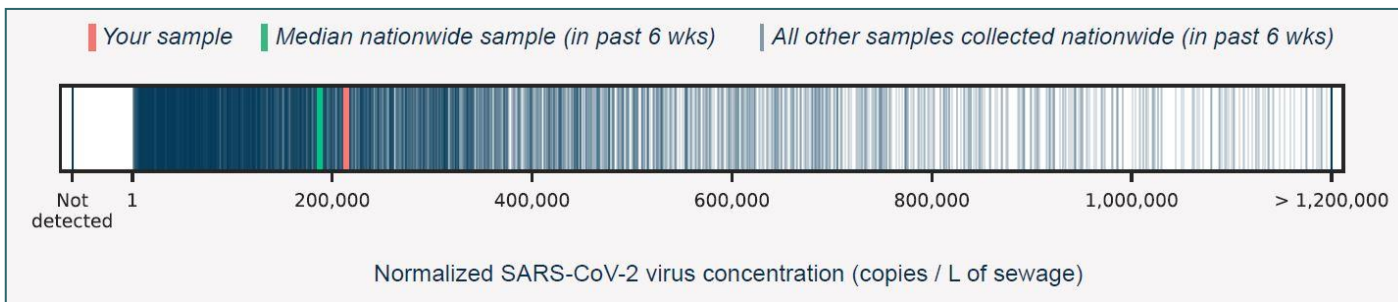
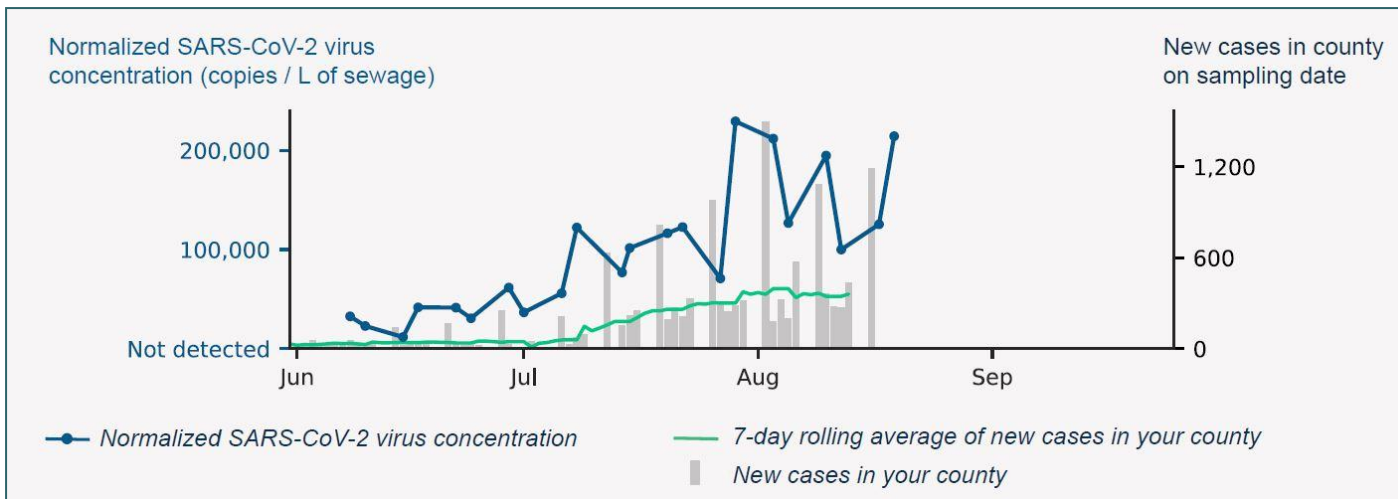
COLLABORATION

Collaboration



RESULTS

Results



“

When can we get back to work in person?

What are agencies doing in order to do so safely?

”

CASES & VACCINATIONS

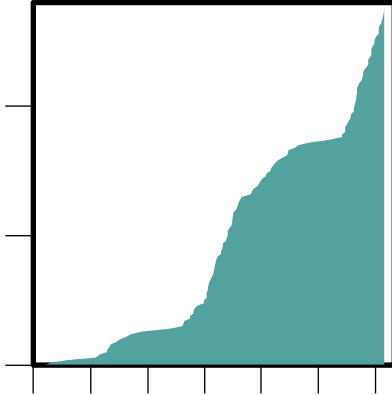
Cases & Vaccinations

Covid-19 Cases at EBMUD

Vaccine Mandate

Vaccination Record

Cumulative...



From: Wynne, Bridgett
Sent: Thursday, September 2, 2021 9:39 AM
Subject: EOT Message - 9/2/21

Good Morning:

This is a message from the Emergency Operations Director, David Briggs. Please share and post this information for employees who do not have Outlook access. Thank you.

COVID-19 Vaccination and Testing

Please note the following changes to dates.

- All employees must be fully vaccinated by **November 1, 2021** including employees who are telecommuting, with the exception of employees with sincerely held religious beliefs or valid medical reasons for not getting vaccinated, as determined by the District.
- Weekly COVID-19 testing will begin **September 13, 2021** for unvaccinated staff, which will be allowed on District time and at District expense through October 31, 2021. Testing kits will be provided to employees. During this period telecommuting employees who are not vaccinated must have a negative COVID-19 test result no more than 72 hours prior to entering a District worksite. Details about where to pick up test kits will follow.
- Beginning **November 1, 2021**, only employees who have received official accommodations/exemptions from the COVID-19 vaccination requirement will be allowed to continue the weekly testing protocol. This testing will remain on District time and at District expense.

Please note that the District is continuing to meet and confer with the Unions on the impacts of the COVID-19 Vaccination requirements. If those meetings result in any changes related to vaccination and testing requirements, those changes will be communicated in future messages.

Vaccination Status

All employees must provide written proof of vaccination by completing the new e-form (PE-159) available on the [SplashPad PE-159: COVID-19 Vaccination Verification form](#). The PE-159 form will ask employees to upload a photo of their proof of vaccination (myVaccinationRecord.cdh.ca.gov) that can be obtained using the California Department of Public Health Vaccination Record at <https://myvaccinationrecord.cdph.ca.gov>. If you have a trouble completing the Form or accessing your QR code, please contact Employee Services at x0764.

Vaccination Exemption Requests

Employees with sincerely held religious beliefs or valid medical reasons for not getting vaccinated, as determined by the District, will be provided a reasonable accommodation to enable the employee to otherwise comply with these vaccination requirements, including but not limited to being required to test weekly for COVID-19 and submit the results to the District. The forms to request an exemption related to the District Vaccination Policy have been posted to the forms shop. The forms were built in DocuSign so they can be completed and electronically signed on a District computer, Phone, or iPad.

PE-161 COVID-19 Medical Exemption Accommodation Application

PE-160 COVID-19 Religious Exemption Accommodation Application

If the exemption request is denied, employees will have six weeks to be fully vaccinated from the date of the denial, or by November 1, 2021, whichever is later.

PE-159 COVID-19 Vaccination Verification

Employees are required to submit proof of their vaccination status once the vaccine is filed. The District requires a screen shot of the California Department of Public Health (CDPH) Vaccination Record at <https://myvaccinationrecord.cdph.ca.gov/>. Here you will enter your first and last name, date of birth, your phone number or email address, and create a PIN number. You will then be sent an email or text with a QR to get to your official vaccination record. You have to remember the PIN number you created to access your record. Once you access your record take a screen shot and save that photo. This is what you will upload as proof of vaccination.

Hi folks, when you submit this form, the owner will be able to see your name and email address:

* Required

1. Union Representation *

Select your answer

2. Employee ID *

This value must be a number

3. ORG ID *

Enter your answer

4. Please confirm the following statement by entering "I confirm." *

I have completed all required doses of the COVID-19 vaccine.

Enter your answer

5. Date Vaccination Course Completed *

Date Vaccination Course Completed is the date of the first shot if vaccine only required one shot, or date of the 2nd shot if vaccine required two shots.

Please input date (MM/DD/YYYY)

Upload file

6. Please upload a copy of your California Department of Public Health Vaccine Record with the QR code.

If you are unable to access your California Department of Health Vaccine Record call employee services at 510.287.0764 (non-anonymous number) *

* Upload file

File number limit: 1 Single file size limit: 10MB Allowed file types: PNG, JPEG, PDF, DOC, XLS, Video, Audio

Submit

Mar-20000111
Apr-20000111
May-20000111
Jun-20000111
Jul-20000111
Aug-20000111
Sep-20000111
Time

Covid Protocols



Symptom Checklist

EBMUD COVID-19 Symptom Checklist

EMPLOYEE INFORMATION

Employee Name: _____

Employee Number: _____

Employee Supervisor: _____

Date: _____

SELF-CHECK QUESTIONS

1. Within the last 10 days have you been diagnosed with COVID-19 or had a test confirming you have the virus? Yes No

2. During the last 14 days, have you had **close contact*** with a person (including a household member) who:

- tested positive for COVID-19 or
- is isolating due to a potential or confirmed COVID-19 infection or
- was or currently is experiencing symptoms consistent with COVID-19?

*Close contact is defined as someone who was within 6 feet of an infected person for a cumulative total of 15 minutes or more over a 24-hour period starting from 2 days before illness onset, or for asymptomatic patients, 2 days prior to their COVID test.

3. Have you had any one or more of these symptoms today or within the past 24 hours, which is new or not explained by a reason other than possibly having COVID-19? Yes No

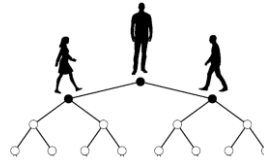
- Fever, chills, or repeated shaking/ shivering	- Headache	- Runny or congested nose
- Cough	- Shortness of breath, difficulty breathing	- Diarrhea
- Sore throat	- Feeling unusually weak or fatigued	- Nausea and vomiting
- Loss of taste or smell	- Muscle pain	

If your response to **ANY** of the questions is YES, please **stay home** and call the District's COVID-19 Symptom and Exposure Hotline at (510) 287-7005 and your supervisor.

X-100 - 11/20 All fields required. See page 2 for full instructions.



COVID Hotline



Contact Tracing



COVID Testing

Safe Return to Workplace Plan

Field/On-Site Workers



Continue working as usual with Covid protocols

Office Workers



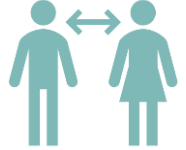
2 days in the office
3 days telecommuting

Face Coverings



Required indoors
& outdoors if within 6 ft

Physical Distancing



Recommended where feasible

Transit Programs



Continue subsidy programs

Carpooling & Parking



Face coverings required

Large Gatherings



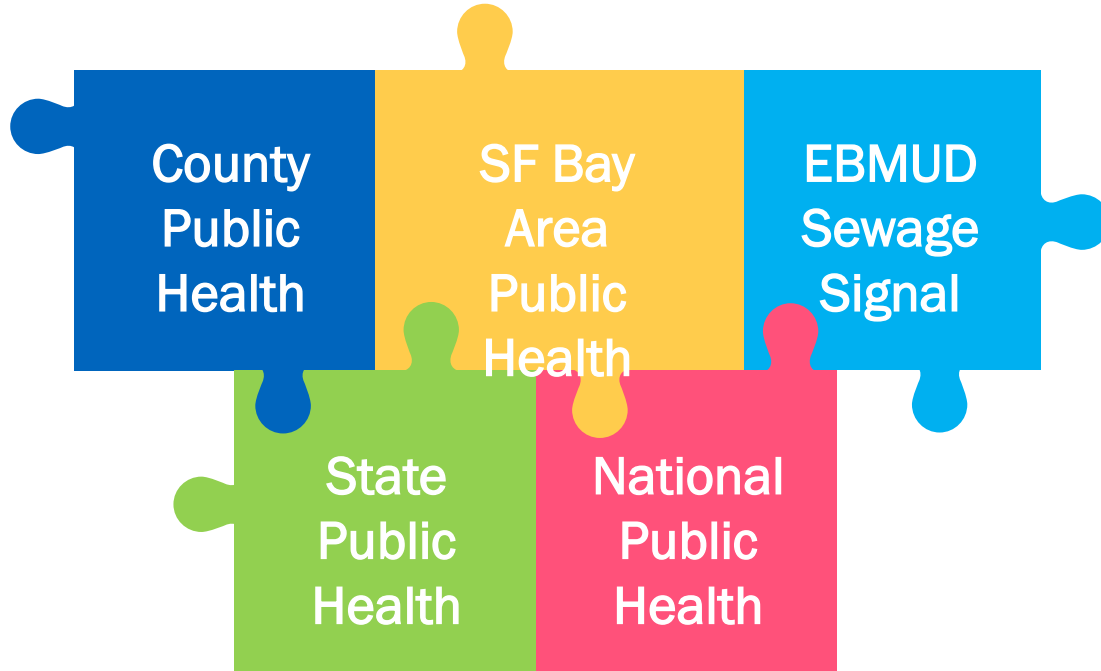
Allowed but some restrictions

Common Areas



Allowed but some restrictions

Do We Have A Return Date?

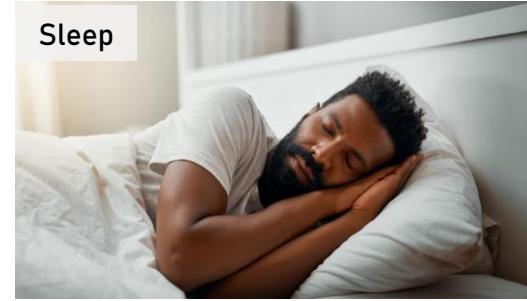


Telecommuting Benefits

LESS OF THIS



MORE OF THIS



Telecommuting Benefits

Reduce Driving Risks



Reduce Greenhouse Gas Emissions



Stay Indoors During Wildfires



Reduce Crime Risks



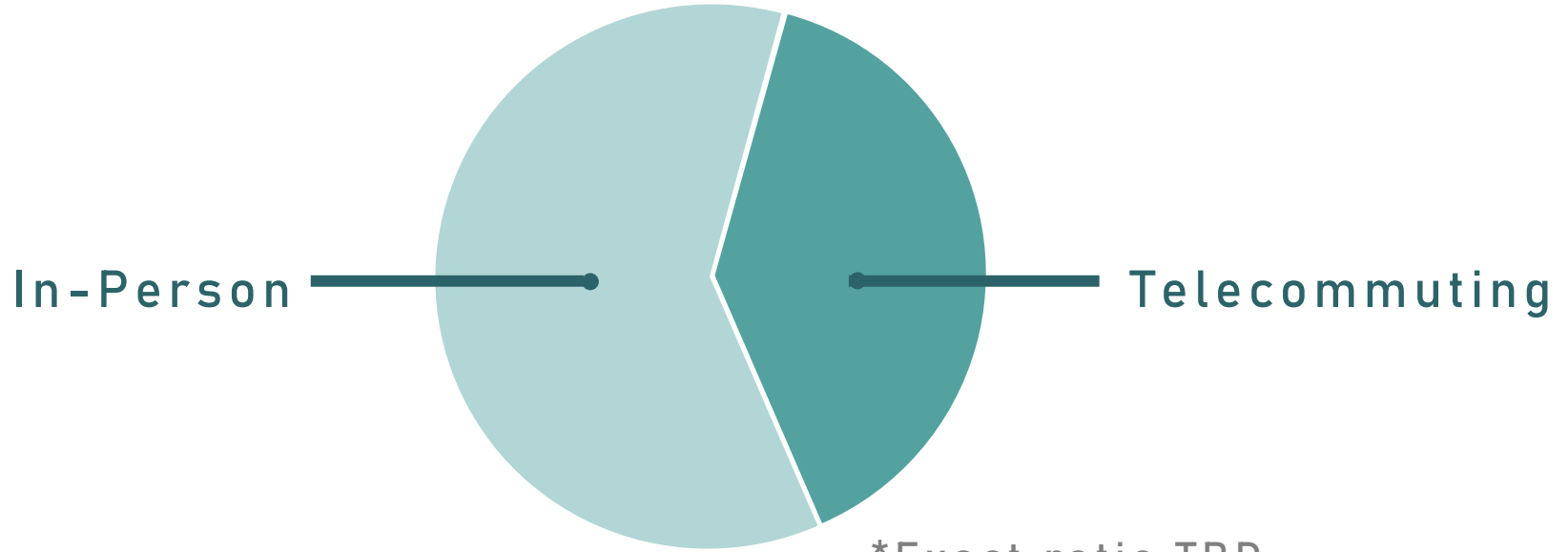
Potential Cost Savings on Office Space



General Flexibility



Hybrid Model



*Exact ratio TBD



**Thank you!
Any questions?**



**EAST BAY
MUNICIPAL UTILITY DISTRICT**

**EILEEN M. WHITE, PE
DIRECTOR OF WASTEWATER
EILEEN.WHITE@EBMUD.COM**



Tom Rosales
ASSISTANT DIRECTOR
CITY OF SAN DIEGO

City of San Diego Public Utilities Department

COVID 19 CWEA/CASA Update

September 29, 2021



Public Utilities Department

What We Do

- Deliver clean, safe water to our 1.4 million community members
- Collect, treat, and dispose of wastewater for our City and several surrounding communities, serving 2.2 million community members

Overview of Department

Deliver high quality drinking water and recover wastewater for treatment and reuse

WATER DELIVERY

**WATER SYSTEM
OPERATIONS**
Imports and treats
water for delivery

**WATER
CONSTRUCTION &
MAINTENANCE**
Maintains water
pipes and meters

WATER RECOVERY

**WASTEWATER
COLLECTION**
Collects wastewater
from source and delivers
for treatment

**WASTEWATER
TREATMENT & DISPOSAL**
Treats and disposes of
wastewater
(both Muni and Metro)

PURE WATER OPERATIONS
Potable reuse production

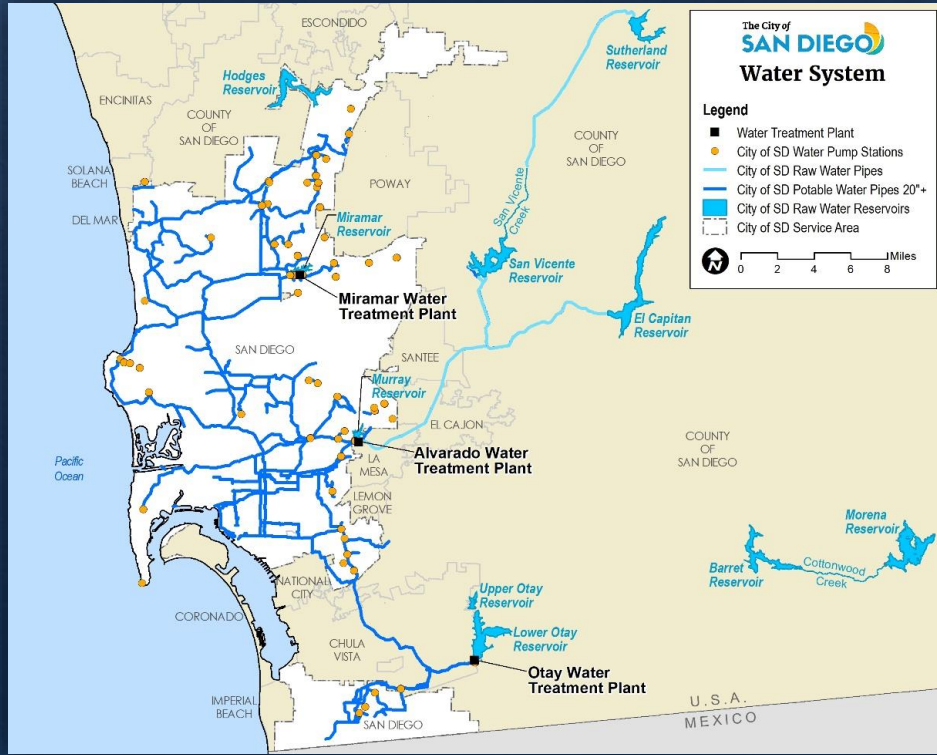
**FINANCE,
EMPLOYEE SERVICES &
QUALITY ASSURANCE,
INNOVATION &
TECHNOLOGY**

**ENGINEERING & PROGRAM
MANAGEMENT, PURE WATER PLANNING,
ENVIRONMENTAL MONITORING &
TECHNICAL SERVICES**

**CUSTOMER SUPPORT,
EXTERNAL AFFAIRS**



Water Infrastructure



- Operate nine reservoirs and three plants for our water supply
- Maintain 3,316 miles of potable water mains and 104 miles of recycled water mains
- Operate 49 pump stations to keep water flowing to every community
- Read water meters, investigate, and fix leaks



Wastewater Infrastructure



- Treat wastewater for 15 regional agencies
- Maintain 3,039 miles of sewer mains
- Operate 82 pump stations, four treatment facilities, and two ocean outfalls
- Produce roughly 20 million gallons of recycled water per day



Water Quality & Sustainability

- We test over 300,000 water/wastewater samples per year and our drinking water is treated using several processes
- We have about 23 megawatts total of City-owned and privatized on-site renewable energy generation capacity
- Our operations are sustainably focused: Conservation, Pure Water, recycled water, ocean monitoring, wastewater treatment monitoring



COVID 19 (March 2020 – June 2021)

- Extensive cleaning of work areas, vehicles and other equipment. Mandatory PPE
- Distancing in vehicles and/or only one employee per vehicle
- Creating different work shifts to minimize contact in muster areas and not “cross contaminate” teams
- Mandating certain work groups (engineers, food establishment, admin support) perform their duties via teleworking
- Offer specialized federal (FFCRA) and City (SDFFCRA) leave to cover illnesses or need to care for family
- Developed City-wide Covid exposure protocols. PUD with many “boots on the ground” operating divisions, still had to provide water/sewer services for public health and safety reasons

COVID 19 (March 2020 – June 2021)

- Established standards for air exchanges in buildings with mechanical ventilation (MERV-13)
- Daily departmental updates initially. First eight weeks of Covid-19 seemed like 24/7 Covid related work
- PUD participating in SCCWRP Covid-19 surveillance monitoring effort

COVID 19 (Present Day)

- Since about **June 2021**, an easing of mandatory masking if vaccinated. Some teleworking employees began to return to work, after consulting w/their supervisors
- **(July 2021)** Relaxed visitations by outside vendors, consultants, etc. Limited access for resources or to complete project timelines
- Mandatory in public areas (inside and vehicles) again since **August 2021**. A return to encouraging that employees remain teleworking when possible
- Enhanced sanitation still occurring
- **(Sept 27, 2021)** Mandatory status reporting by all City employees
- **(Dec 1, 2021)** Mandatory vaccination required by all City employees. Employees may submit a Reasonable Accommodation request for medical or religious exemptions
- City allowing each Department to determine its needs for having employees being present in the workplace versus teleworking

Questions?



Beverli A. Marshall

GENERAL MANAGER

VALLEY SANITARY DISTRICT





Greg Kester

**MODERATOR
DIRECTOR OF RENEWABLE RESOURCE PROGRAMS
CASA**



Q&A

Process for Claiming Contact Hours for this Webinar

1. Log in to <https://owen.cwea.org/> the Online Wastewater Education Network (OWEN) with your mycwea.org account info and find this program in “Your Dashboard”.
2. Enter the attention codes as 1st attention check code – 2nd attention check code (XXXX-XXXX) in the “Attention Check Code” component under the "Contents" tab within 48 hours of the live webinar.
3. Your contact hours will be reflected in your mycwea.org account within 2-3 weeks following completion.

UPCOMING EVENTS

events.cwea.org

NORTHERN SAFETY DAY

OCTOBER 20
Woodland, CA
(Yolo County Fairgrounds)

BIOSOLIDS & RENEWABLE ENERGY SEMINARS

OAKLAND: Oct. 13
COSTA MESA: OCT. 14



7677 Oakport Street Suite 1030 Oakland CA 94621
510.382.7800 | www.cwea.org



Thank You!