Partnerships to Reduce the Impacts from COVID-19 on the Water Sector

WEBINAR SERIES: PART 3

The National Association of Clean Water Agencies
July 28, 2020 | 2:00 PM - 3:30 PM EST
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Reducing the Impacts from COVID-19: Part 3
Reducing the Impacts from COVID-19: Part 3

Yvonne Forrest
Director
Houston Water
Houston, TX
Today's Featured Speakers

Reducing the Impacts from COVID-19: Part 3

Yvonne Forrest
Director
Houston Water
Houston, TX

Steve Straus
President
Glumac, A Tetra Tech Company
Portland, OR

Jeff Theerman
Vice President/Senior Utility Performance Consultant
Brown and Caldwell
St. Louis, MO
Former NACWA President 2010-2011

Cindy Wallis Lage
President, Water Business
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Kansas City, MO

Thomas Brzezinski
Chief Business Development Officer
Wade Trim
Taylor, MI

George Hawkins
Founder & Chief Executive Officer
Moonshot LLC
Bethesda, MD
HOUSTON WATER PANDEMIC RESPONSE
YVONNE W. FORREST
DIRECTOR, HOUSTON WATER
HOUSTON WATER

>1,600 TEAM MEMBERS

3 SURFACE WATER PURIFICATION PLANTS

49 GROUNDWATER PLANTS

7,764 MILES OF UNDERGROUND WATER LINES

39 WASTEWATER TREATMENT PLANTS

382 LIFT STATIONS

6,800 MILES OF SANITARY SEWER LINES
## POLICIES AND PROCEDURES

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<th>IN PLACE</th>
<th>DEVELOPED</th>
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<td>• PANDEMIC POLICY</td>
<td>• TELEWORK POLICY</td>
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<td>• CONTINUITY OF OPERATIONS PLAN</td>
<td>• WORKPLACE / BUILDING ACCESS PROCEDURES</td>
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<td>• FAMILY AND MEDICAL LEAVE POLICY</td>
<td>• ESSENTIAL EMPLOYEE LETTER</td>
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<td>• <a href="https://www.houstontx.gov/adminpolicies/3-2.html">https://www.houstontx.gov/adminpolicies/3-2.html</a></td>
<td>• COMMUNICATIONS</td>
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Annually reviewed and updated
SAFETY WORKPLACE
TEMPERATURE CHECK

IF YOU HAVE COVID-19 SYMPTOMS: TEMPERATURE CHECK! DO NOT COME TO WORK.

Please call your doctor. If you do not have a doctor, call the Houston Health Department: 832.395.3790

If you have questions, email: info@houpublicworks.org

For more information, visit: houstongrease.org

COOKING
- Slow Cook
- Steamed
- Baked

For more information, visit: houstongrease.org

CONTAIN IT
CONTÉNGALA

GREASE & WIPES CLOG PIPES!
LA GRASA Y LAS TOALLITAS BLOQUEAN LAS TUBERÍAS!

The main cause of sanitary sewer overflows in Houston is clogged pipes from fats, oils, and grease poured down kitchen sinks and waste flushed down toilets. Put grease and waste in their place – the trash, never down the drains!

Las grasas que se tiran por el lavabo de la cocina y las toallitas que se desechan en el inodoro son la causa principal de las bloqueos que provocan desagües bloqueados en Houston. Ponga la grasa y las toallitas en su lugar. ¡La basura, nunca por el desagüe!

KITCHEN
LA COCINA

BATHROOM
BAÑO

Cool it
Enfríela

Pee
Pipí

Poo
Popó

Toss it
Deséchela

Paper
Papel

Information courtesy of The Grease Coalition

COVID-19
NOTICE

Social Distancing: Breakrooms / Elevators

6ft apart
no more than
3 people

Did You...
- push the elevator button?
- hold onto a handrail?
- touch a doorknob?

Make sure you wash your hands for 20 seconds!

STAY UPDATED
houstonemergency.org/COVID19

@HouPublicWorks

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HOUSTON
PUBLIC WORKS
### OPERATIONAL IMPACTS

**Operations and Maintenance Team**

- Shifts altered or split
- Tailgates/Team meetings outside
- Redistribution of vehicles for crew social distancing
- One facility team sequestered

**Office Team**

- Telework
  - Only 10% of the staff is eligible
  - IT issues – equipment, security and connectivity
  - Productivity tracking
- Office renovations
  - Plan for open concept changed
  - Plexiglass barriers
  - No touch light switches / bathroom fixtures
thank you!
Steve Straus
President
Glumac, A Tetra Tech Company
Portland, OR
STRATEGIES FOR RETURNING TO WORK IN A COVID-19 ENVIRONMENT

Presented By

TETRA TECH
High Performance Buildings Group
Because it is sufficiently likely that SARS-CoV-2 can be transmitted through the air, **airborne exposure to the virus should be controlled.** Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.

**ASHRAE's statement on airborne transmission of SARS-CoV-2/COVID-19**
ENHANCED HVAC SYSTEMS

Air Quality
Increase outdoor air ventilation
Disable demand-controlled ventilation
Extend hours of operation
Under floor air distribution

Filtration
HEPA Filters
Bi-Polar Ionization
UV Light Sanitization
Carbon Filters
O-Zone Generators

Air Exchange
Reduce air recirculation
Increase bathroom exhaust
Open outdoor air dampers up to 100%

Humidification
Control humidification*

Due to the nature of the SARS-CoV2 virus, HVAC solutions are not effective in preventing the spread of contamination person to person, however the following technologies are presented because they provide benefit in bacterial and virus reduction within their path of effect. The highest performance treatment systems can remove up to 99.99% of viruses.
Installation is most often in supply ducts, but can also be rack-mounted in plenums, in air handling units, or smaller units can be installed within fan coil unit plenums.

The unit has negligible air pressure drop, and can be easily retrofitted to an existing HVAC system.
Commercial Grade Ozone Generators produce very high concentrations of Ozone that oxidizes the viruses and bacteria, effectively disinfecting it. Ozone is unstable, potentially toxic, and a carcinogenic gas and should never be used in a room with a person present.

USE OF O-ZONE GENERATORS IS NOT RECOMMENDED BY TETRA TECH
HUMIDITY CONTROL

1. John Noti, et al, Humidity Leads to Loss of Infectious Influenza Virus from Simulated Coughs (February 27, 2013)
3. ASHRAE Guideline 10-2016, Interactions Affecting the Achievement of Acceptable Indoor Environments
ULTRAVIOLET (UV) SYSTEMS
THREE TYPES OF ULTRAVIOLET LIGHT (UV)

UV-A – Least harmful
UV-B – Causes sunburns & can lead to skin cancers
UV-C – Germicidal disinfection

LIGHT INDEX

UVA
400 - 315 nm

UVB
315 - 280 nm

UVC
280 - 100 nm

VISUAL LIGHT

INFRARED

MICROWAVE

RADIO
Installation can be in-duct or on AHUs. Lamps installed inside HVAC generally focus on cooling coils & drain pans.

- The majority of modern UVGI lamps create UV-C energy at a near optimum 254 nm wavelength.
- Install banks of UV-Lamps inside HVAC or associated ductwork. Consider adding to return air plenums.
- Requires high UV doses to inactivate microorganisms on-the-fly as they pass through the irradiated zone due to limited exposure time.
- Systems typically designed for 500 fpm moving airstream.
- Minimum irradiance zone of two feet. Additional contact time/length is recommended.
- Studies indicate UV exposure time of 6-10 seconds for maximum effectiveness.
- Should always be coupled with mechanical filtration.
AIR TREATMENT – UV LIGHT SANITIZERS

In-duct and upper air UV

Upper Room Air UV Light Disinfection

[Diagram showing UV light intensity and disinfection zone]

- Low intensity
- High intensity
- UV Luminaire

Distance from back of fixture (feet) vs. Distance from back of fixture (meters)

Height (meters) vs. Height (feet)
AIR FILTRATION – UV LIGHT SANITIZERS

Portable, fully automated units controlled remotely

- >99.9% reduction of vegetative bacteria within 15 minutes
- 99.8% for C. difficile spores within 50 minutes

Far UV-C lights (200-230 nm spectrum) may sanitize w/o harming occupants. Awaiting independent testing.

Units have settings for specific pathogens such as MRSA, C. difficile, both of which are harder to inactivate than coronaviruses.

- >99.9% reduction of vegetative bacteria within 15 minutes
- 99.8% for C. difficile spores within 50 minutes

One cleanse per 800ft³ achieves 4 air exchanges per hour (50cfm) and also includes a HEPA & Carbon filter

COMPLEMENTS TO LEED AND WELL

WELL buildings require or encourage:
- UV germicidal irradiation (UVC) as an enhancement to the air filtration system
- Carbon filtration
- Antimicrobial surfaces
- Increased Outdoor Air
- Air quality monitoring
- Operable windows
- Adequate handwashing facilities
- Emergency preparedness
- Immunization offerings
- Health risk assessments
- On-demand health services
- Health awareness education/promotion

LEED encourages:
- Outdoor Air
- MERV 13 + filters
- Operable windows
- Air quality monitoring
• **Outside Air:** Increase outside air to provide dilution. Operate continuously.

• **Restrooms:** Increase exhaust in toilet rooms. Check trap primers. Consider UV sterilization lighting.

• **Humidity Control:** Add humidification to maintain 40% minimum to 60% maximum relative humidity in the winter.

• **Local Filtration:** Provide local HEPA or ionization filtration in dense locations like elevators and restrooms.

• **Touchless:** Utilize touchless technology.
BUILDING FOR A RESILIENT FUTURE WITH SUSTAINABLE DESIGN
Utility Optimization to Reduce the Impacts of COVID-19
Reacting: Taking Early Action with Tools and Assistance

Download the guides at brownandcaldwell.com.

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Enduring: addressing current and growing challenges

- Revenue Loss – increased delinquencies
- Capital Program Impacts
- Alternative Funding
- Deferred Maintenance
- Reluctance to Return to the Office
- What does the future hold?
Evolving: Optimizing and Working Differently
With Ntensify™ for nutrient removal, Pueblo’s WRRF can treat more wastewater with less capital, energy, chemical, and disposal costs within the facility’s current infrastructure—all while meeting nutrient regulations.

- **CAPACITY**: Increased by 50%
- **CHEMICAL SAVINGS**: >$200K/yr cost savings on chemical usage
- **EFFLUENT QUALITY**: Gained credits to extend compliance schedule for low-level nutrient limits
- **ENERGY SAVINGS**: >$150K/yr cost savings on aeration energy
Cindy Wallis Lage
President, Water Business
Black & Veatch
Kansas City, MO
RESILIENCE

STRATEGIC | FINANCIAL | OPERATIONAL
Reducing the Impacts from COVID-19: Part 3

Thomas Brzezinski
Chief Business Development Officer
Wade Trim
Taylor, MI
Observations On Client Interactions

Project and Funding Impacts on CIPs

Virtual Environments Acceptance and Use to Maintain Communications
Project and Funding Impacts on CIPs

Today... projects and procurements are proceeding

Some clients are advancing projects quicker

Funding appears unharmed, but for how long?

Client staffing is being impacted
Virtual Environment Acceptance and Use to Maintain Communications

Learning the virtual world quickly
Project and progress meetings
Procurement and selection meetings
Client development and sales meetings
But the clients are fighting back...
NACWA: Partnerships to Reduce the Impacts from COVID-19 on the Water Sector Webinar Series

July 28, 2020, 2:00 pm – 3:30 pm ET

George S. Hawkins, Esq
Prior GM, DC Water
Founder, Moonshot Missions (501c3)

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Clean Water No Matter the Zip Code
Your Trusted Advisor

Partners:
Henderson Brown, Esq., Prior General Counsel, DC Water and WSSC
Andy Kricun, P.E., Previous CEO, Camden MUA
David St. Pierre, P.E., Previous CEO, Metropolitan Water Reclamation District of Greater Chicago
Reducing the Impacts from COVID-19: Part 3

Yvonne Forrest
Director
Houston Water
Houston, TX
UPCOMING 2020

Conferences & Events

Hot Topics in Clean Water Law
Webinar: Part 3
September 16, 2020 | 2:00 PM – 3:30 PM EST

Learn More and Register at www.nacwa.org/events
NACWA’s strength is in our members.

NACWA is the nation’s recognized leader in clean water advocacy for public utilities, made possible through the collective voice of our members.

Experience the value in membership through...

- Legislative, regulatory, legal, and communications information and analysis.
- Peer-to-peer resources exchange and support.
- Interactive webinars and events.
- Recognition for your clean water utility’s achievements through our national awards programs.

Learn more at nacwa.org/join.