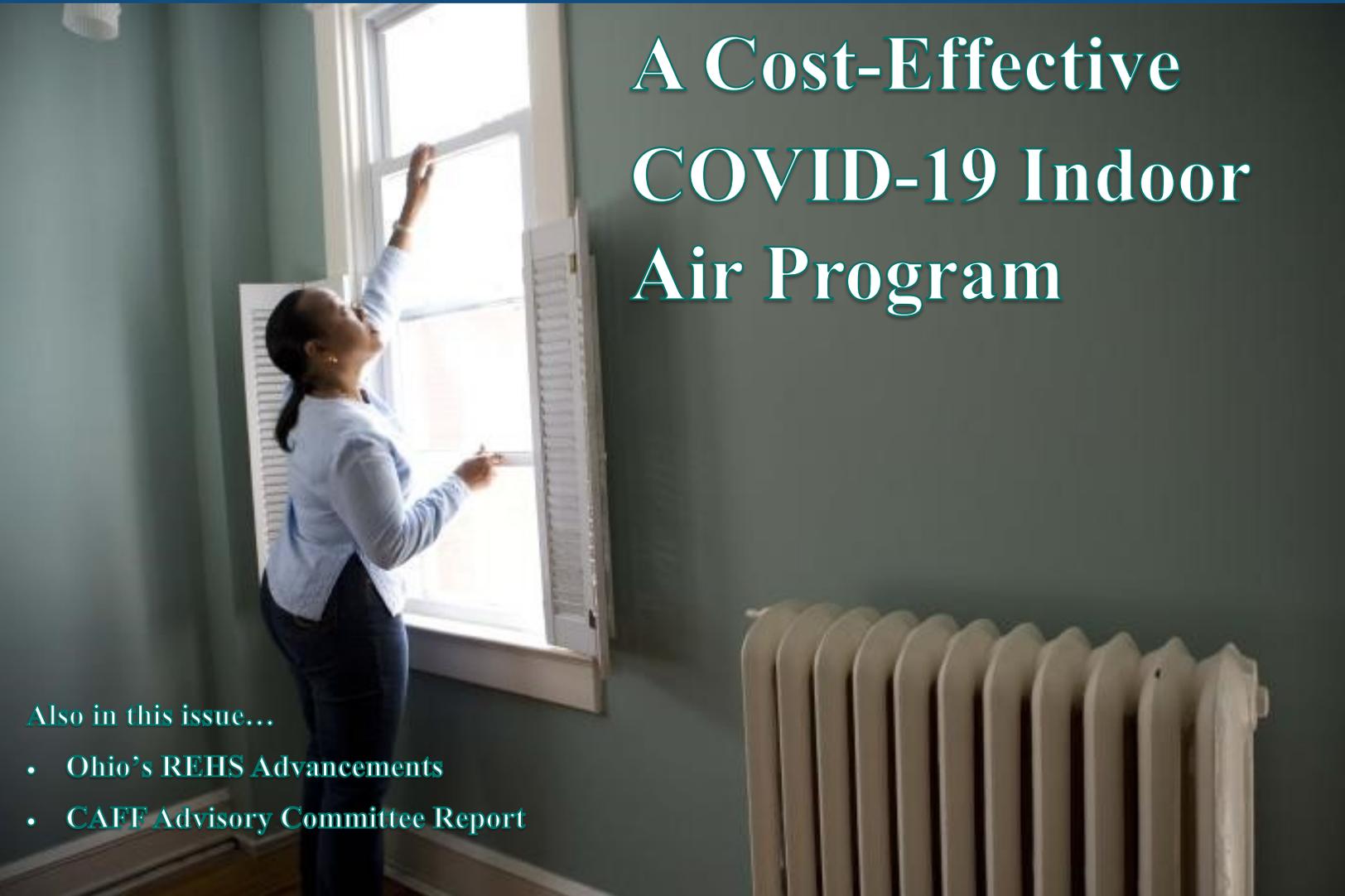


Ohio Journal of
Environmental
Health

1st Quarter 2022



A Cost-Effective
COVID-19 Indoor
Air Program

Also in this issue...

- Ohio's REHS Advancements
- CAFF Advisory Committee Report



Official Publication of the Ohio Environmental Health Association

www.ohioeha.org
www.facebook.com/ohioeha
www.twitter.com/OhioEHA



The object and purpose of the Association shall be the betterment of the health and welfare of mankind through the improvement of the environment. This shall be done by sponsoring state and regional meetings and publications, by developing methods of measuring and evaluating achievements in environmental health, the establishment of a central point of reference and education material for the membership, the procurement of cooperation with other agencies and organizations, and such other activities as will lead to the greater efficiency and professional growth of the membership.

Board of Directors

President

Stephan Ruckman, MPH, REHS
Worthington City Schools

President Elect

Vacant

Past President

Carrie Yeager, REHS
Butler County Health Department

Vice President

Matt Tyler, MPH, REHS
Public Health Dayton & Montgomery County

Vice President Elect

Vacant

Secretary

Jeff Gibbs, REHS
Franklin County Public Health

Treasurer

Mary Helen Smith, MPH,CPH, REHS
Portage County Combined General Health District

Administrative Aide

Vicki Johnson

Northeast District Director

Rebecca Jewell, BS, REHS
Cuyahoga County Board of Health

Northwest District Director

Adam Schultz, REHS
Union County Health Department

Southeast District Director

MaryBeth Brown, BS, REHS
Franklin County Public Health

Southwest District Director

Elizabeth M. DeWitt, REHS
Clark County Combined Health District

Publications Committee

Adam R. Howard, MPH, REHS
Delaware Public Health District
ahoward@delawarehealth.org
740-203-2069

Dustin Kent, MPH, REHS
Delaware Public Health District
dkent@delawarehealth.org
740-203-2058

Tracy L. Buchanan, REHS
Retired, Ohio EPA

Publication Information

The Ohio Journal of Environmental Health is published by the Ohio Environmental Health Association (PO Box 234, Columbus, OH 43216-0234). A one year subscription, without membership, is available at a cost of \$60.

Postmaster send address changes to: 2818 Annabelle Ct, Grove City, OH 43123. Second Class Postage Paid. Grove City, Ohio.

Other correspondence relating to address changes, applications for membership and other matters should be addressed to: Ohio Environmental Health Association, Vicki Johnson, Administrative Aide, PO Box 234, Columbus OH 43216-0234; Phone 614-871-0665.

The articles herein published represent the work of the designated author(s). The facts, opinions, and findings represented in the articles are those of the author(s) and do not necessarily represent the facts, opinions, and findings of the Ohio Environmental Health Association nor the publications committee.

The appearance of advertising in this publication does not necessarily include its endorsement.

To include articles or other materials for publication, contact: Adam Howard, Dustin Kent, or Tracy Buchanan

Advertisement Rates

One Page

1 Issue: \$190
1 Year: \$584

1/2 Page

1 Issue: \$120
1 Year: \$356

1/4 Page

1 Issue: \$79
1 Year: \$216

Ohio Journal of Environmental Health

Volume 71
Number 1
1st Quarter 2022

Table of Contents

President’s Message	4
Stephan Ruckman, MPH, REHS - Ohio Environmental Health Association President 2020-2022	
Recognizing Ohio’s Newest Registered Environmental Health Specialists	5
2022 Annual Educational Conference.....	6
CAFF Advisory Committee Report	7
Jason Menchhofer, MPH, REHS - Mercer County Health District	
NEHA Update	9
Featured District Director’s Message: Northwest.....	12
Adam Schultz, REHS - Union County Health Department	
A Cost-Effective COVID-19 Indoor Air Program.....	14
Arie Pequignot, BS, EHST - Logan County Health District	
Announcements.....	20
Committees & Chairs.....	21

Advertisements

Acella.....7	University of Findlay.....8	Paper Thermometer.....10	
Presby Environmental11	Purell.....11	Norweco.....13	ANUA.....26
Tangent.....17	Polylok.....18	Infiltrator ATL.....19	JET.....19

President's Message

Stephan Ruckman, MPH, REHS
Ohio Environmental Health Association
President 2020-2022

Welcome 2022!!! It's hard to believe Spring is just around the corner! With the coming of Spring comes new growth, more sunshine, and warmer days. Spring is also historically a time where we gather as an Association for our Annual Educational Conference. As I'm typing this message we are a full go for this year. Vice President Matt Taylor and his planning committee have put together an excellent agenda this year! There will also be opportunity for creating and strengthening our professional relationships through networking and a preconference opportunity to gather at Top Golf. More details are included in this edition of the Ohio Journal of Environmental Health as well as on the OEHA website. Please consider joining us for two days full of excellent educational opportunities, networking and recognition of those doing great work on behalf of OEHA. I'm beyond excited for all that AEC offers and looking forward to seeing you all there!



The past two years we've endured many challenges as environmental health specialists. Our members didn't waiver in their commitment to their communities and peers. And, the Board of Directors didn't waiver in their commitment to represent the membership and make sure that our members' interests were protected. This is certainly evident in the support of passage of legislation that modernized licensure for environmental health specialists, but also present in the continued effort to improve programing and public health overall. We recently partnered with the Association of Ohio Health Commissioners and

the Ohio Restaurant Association to address budgetary impacts of the pandemic on food inspection programs. We also continue to actively monitor and comment on legislation in the Ohio General Assembly.

Bills we are currently reviewing relate to regulation of swimming and recreation at man made ponds where inflatable structures are present, the impact of the governing structure of local boards of health, and overall pandemic response. In addition, we are working to address the survey structure for food programs including how registered environmental health specialists are evaluated. Please continue to monitor the Ohio Environmental Health Association website at www.ohioeha.org for details on all of this as well as call to action if needed. Hick's Partners, our legislative liaisons, will be providing an update on all of this and more at the Annual Educational Conference.

My hope is that this message finds all of you optimistic about what is to come for environmental public health in Ohio. Many of us may still be feeling the effects of tremendous workloads and the long days the pandemic presented. But, great things lie ahead. Spring reminds us that many things are made new. Let's renew our commitment to being the amazing environmental health professionals we are. And, let's remind our peers of the great things they continue to do to protect our communities in Ohio.

Can't wait to see you all at AEC 2022!!!

Recognizing Ohio's Newest Registered Environmental Health Specialists

In this section we recognized those individuals who successfully met the standards to earn the title Registered Environmental Health Specialist in the State of Ohio. This year we congratulate the following who achieved the status of Registration from January 1, 2021—December 31, 2021.

- Kristen Kennedy
- Lindsey Pittak
- Lauryn Bone
- Jamie Cahill
- Kelsey Conner
- Richard Stewart
- Samantha Wantz
- Jacob Zeigler
- Benjamin Rabin
- David Dumford
- Sean Griffin
- Michael Spies
- LaTasha McDonald
- Jennifer Ramirez
- David Roland
- Joshua Herold
- Cameron Kunkle
- Scott Morris
- Chad Wamsley
- Keianna Wimberly
- Kelly Gregory
- Traven Wood
- Heidi Babos-Ford
- Nicholas Sams
- Mara Pusateri
- Joseph Kollar
- Glynnis Prigge
- Matthew Schwab
- Bridget Haag
- Brittany Harper
- Aaron Joy



- Hannah Hoffman
- Ariel Ruth
- Christina Gustin
- Brittanie Evans
- Hailie Cassady
- Elliott Manini
- Stephen Rudd
- Jodi Gearhart
- Jenny Chan
- Michael Judin
- Kyle Sawmiller
- Amanda Preslicka
- Shelby Ballentine
- Matthew Hicks
- Kara Ameling
- Shelby Simmons
- Arielle Hilliard
- John Hils
- Kelly Scranton
- Mark Citriglia
- Mitchell Guiler
- Daniel Murphy
- Jesse Christmas
- Brandon Blakeman

2022 Annual Educational Conference

For conference registration, [click here](#) or visit www.ohioeha.org

For Top Golf registration, [click here](#) or visit www.ohioeha.org

Don't forget to vote for OEHA Officers at AEC!

<h1>SAVE the DATE</h1>	
	 <p>Annual Educational Conference</p>
<p><u>April 14 & 15, 2022</u> Columbus Marriott Northwest 5605 Blazer Pkwy Dublin, OH 43017</p>	
<p>Contact the Marriott hotel at 1-888-801-7133 and reference OEHA for a special room rate. All guests staying at the hotel will receive free breakfast vouchers. Watch your email for registration information coming soon!</p>	
<p>Any questions contact Matthew Tyler, OEHA Vice President/AEC Planning Chair, at 937-225-4463, or visit our website at www.ohioeha.org.</p>	

CAFF Advisory Committee Report

Jason Menchhofer, MPH, REHS
Mercer County Health District

The Concentrated Animal Feeding Facility (CAFF) Advisory Committee met on February 1, 2022 at the Ohio Department of Agriculture's Bromfield Administration Building. The CAFF Committee meeting was called to order at approximately 9:30 AM.

Division of Livestock Environmental Permitting (DLEP) Chief Sam Mullins led a discussion on the formation of a subcommittee to review the Certified Livestock Manager (CLM) rules found in OAC 901:10-1-06 and OAC 901:10-2-16 and provide recommendations to the CAFF Committee. This will consist of 2-3 virtual meetings between now and the June CAFF meeting. It was decided that the subcommittee should be made up of approximately 7 current members

of the CAFF Committee, and that there should be no more than one representative from each organization represented on the subcommittee.

Chief Mullins also gave an update on the Case Farms broiler facilities. This is a group of 30 facilities that are making facility and operational changes to accommodate smaller chickens. 10 are permitted, 7 are in progress, and ODA is now applying pressure to the remaining operations to take the necessary steps to become appropriately permitted.

The meeting continued with rule review. Routine rule review is expected to make up a part of each meeting this year. Summaries of the rules reviewed are provided below.



A reliable environmental health solution built just for you

Accela understands the challenges Ohio health departments face, and we've built a cloud solution using industry best practices that's ready to help you achieve excellence on day one.

Learn how Accela's Civic Application for Environmental Health can help modernize health departments in Ohio by automating time-consuming tasks in your dynamic regulatory environment.

www.accela.com/oh-eh

 Accela

Proud supporter of OEHA



OAC 901:10-1-04 Fees

Fee increases are proposed for the first time since 2011 to put the DLEP back in the black, as the program's carryover has been decreasing for the past few years. The resulting fees would range from \$250 to \$3,000 for various aspects of the permitting program. The committee approved of the revisions as presented.

OAC 901:10-5-01 Complaints

Proposed revisions to this rule would distinguish between complaints related to DLEP permit compliance and those specific to manure discharges. This change is proposed to better align with the recommendations of USEPA. The rule revisions were tabled because the committee needs more information on how anonymous complaints and complaints involving CLMs.

OAC 901:10-5-02 Right to Enter Property for Investigations and Inspections

Proposed revisions to this rule would widen the scope to include right of entry to any property, not limited to permitted facilities. This would allow DLEP to address NPDES-related programs if at some point in the future the NPDES program is delegated to DLEP.

Chief Mullins advised the committee that House Bill 349 has not moved and is not expected to move forward. This bill would establish a new permit structure that would require permitting and inspection for smaller concentrated animal feeding operations that are below the current regulatory threshold.

Chief Mullins also gave an update on the status of the NPDES program. DLEP has been working with USEPA for many years to attempt to take control of this program as it pertains to livestock facilities. There has been little recent interaction with USEPA due to staffing shortages at USEPA. The Inspector General is pressuring the USEPA Region 5 office to decide on delegation of this program. If DLEP's application is denied, the division will need to start from the beginning and submit a new application.

The meeting ended with a report on DLEP licensing, inspection, and complaint investigation activities over the last quarter of 2021. Many of the compliant investigations pertained to mismanagement of manure and over-application of phosphorous.



University of Findlay®

NEHA Update

Last year, NEHA commented on 33 bills, mostly on bills related to Food Freedom. Each affiliate was cc'd on each e-mail comment.

This year, NEHA will perform the same service (unless the affiliate requests we do not). There may be more bills to respond to because NEHA has adopted 19 policy statements.

Certain states, such as Washington, will not accept testimony from groups outside the state. In that instance [NEHA will] plan on sharing the policy statement and bill number in case the affiliate would like to submit testimony.

Please let Doug Farquhar, NEHA Director of Government Affairs, know if you have any questions or comments at dfarquhar@neha.org.

NEHA/AAS Scholarship Open for Applications

NEHA and the American Academy of Sanitarians (AAS) are pleased to announce the

opening of the 2022 NEHA/AAS Scholarship application period. Undergraduate and graduate students attending an accredited college or university with a recognized curriculum in environmental health sciences are invited to apply. Deadline to submit is March 31.

AFDO Scholarship Awards – Association of Food and Drug Officials [deadline 3/31]

NEHA Award Nominations Open

Join NEHA as we recognize the significant achievements of environmental health professionals who safeguard communities through healthy environments. Nominate a worthy individual or group for the following honors in 2022:

- [NEHA Joe Beck Educational Contribution Award](#)
- [NEHA Walter S. Mangold Award](#)
- [NEHA Dr. Bailus Walker, Jr. Diversity and Inclusion Awareness Award](#)
- [NEHA/NSF Walter F. Snyder Award](#)

FDA Food Code Section 4.703.11 (B)

“achieving a UTENSIL surface temperature of 71°C (160°F) as measured by an irreversible registering temperature indicator”

The FDA Requires
a Dish Temperature
of **71°C/160°F**

Be Prepared – Use
THERMOLABELS®



Try NOW for FREE!

Get your FREE SAMPLES TODAY!

Visit us at paperthermometer.com/sample
to request a sample.

PaperThermometer™

1-877-PTLABEL

info@paperthermometer.com
paperthermometer.com

ADVANCED
ENVIRO)SEPTIC™

RESIDENTIAL • COMMUNITY • COMMERCIAL
Passive Onsite Wastewater Treatment Systems

- **Treatment and Dispersal in One Small Footprint**
- **No Electricity, No Moving Parts**
- **Low Maintenance**



presbyenvironmental.com
info@presbyeco.com • (800) 473-5298

An Infiltrator Water Technologies Company



The New Standard in Surface Sanitizers.



seconds to kill
NOROVIRUS



seconds to kill
HEPATITIS A

Formulated for food-contact surfaces with no rinse required.
No precautionary statements or handwashing required.



GOJO.com/Foodservice

©2020 GOJO Industries, Inc. All rights reserved. | #30177 (02/2020)

Featured District Director's Message: Northwest

Adam Schultz, REHS
Union County Health Department



I would like to start off by saying how excited I am to head into the new year as the 2022-2023 Northwest District Director. My career in public service started at a young age where I worked directly with the public as a

lifeguard, supporting daily living services for quadriplegics, working with various non-profit organizations, and an internship with a local health department. Through these experiences, I quickly realized that I not only found a passion for engaging with the public, but also the work of public health.

My college career started at the University of Toledo where I was asked to train with the women's basketball team as a "practice player" to support the development of the program. After completing a semester at the University of Toledo, I transferred to The Ohio State University's Marion Campus where I was able to walk on to the Men's Basketball team halfway through their season. After finishing my first year in college, I made the decision to transfer back to the University of Toledo where I received my Bachelors of Science in Public Health.

After graduating, I interviewed for a Sanitarian position. Unfortunately, I did not receive the offer. However, 6 months later the job became available and I have now been with the Union County Health Department (UCHD) for 8 years. UCHD has been involved and has been a big advocate for OEHA for many years. Since I was hired, I have been involved with a multitude of different environmental health programs between Pools, Schools,

Campgrounds, Body Art, Septic, Water, and Food. This diverse experience within environmental health has given me great opportunities that have helped me further my public health career. The UCHD



Sanitarian staff are a small but mighty team so most of us are considered "EH Generalists", because of how many programs we balance. I joined the OEHA network during my first year as a Sanitarian. This is a great way to network with your peers and learn a lot about other health districts. This network has continued to give me great opportunities throughout my career and our team is always looking for more and new ways for people to get involved with OEHA.

Getting elected as District Director was a surprise! After briefly stepping out of a nomination meeting, I received a text from a committee member that I had been nominated and elected to serve as the next Northwest District Director. I guess you can say a lot can happen if you miss just a few moments of a meeting! This is a fantastic, rewarding opportunity and I am both proud and excited to serve the Northwest District the best that I can for this next year.

The Northwest OEHA conference will be on October 13-14, 2022 at the Kalahari Resort & Convention Center in Sandusky. I look forward to seeing many of you there. If you have any questions, speaker ideas or other suggestions for the conference please contact me or another planning committee member.



norweco®

*Engineering the future of water
and wastewater treatment*

WHY CHOOSE NORWECO?

- ◆ **SAVE TIME & MONEY:** No wait with Singulair Green; set your own schedule.
- ◆ **NEW PRODUCTS:** We think of it before you need it. Nitrogen reduction, phosphorus removal and water reuse systems available now.
- ◆ **INTEGRITY:** Tested and certified products backed by an experienced team of experts.



1-800-NORWECO | www.norweco.com | email@norweco.com

A Cost-Effective COVID-19 Indoor Air Program

Arie Pequignot, BS, EHST
Logan County Health District

During the COVID-19 pandemic, the Logan County Health District (LCHD) identified a need in the community for an objective procedure to determine if an indoor space could be utilized by the public and be assured that there was a low risk of spreading COVID-19. Through extensive review of online science-based research articles and journals, an understanding was developed that when outdoors the shedding and spreading of the airborne COVID-19 virus was controlled through social distancing, ultraviolet rays from the sun, and dilution by wind. It was then understood that through adequate ventilation, filtration and purification, indoor air could safely approximate outdoor air and successfully reduce COVID-19 infections. Therefore, an Indoor Air Quality Program was designed that could measure basic parameters of air quality and then incorporate certain strategies and mechanical systems that could reproduce the safe levels of outdoor air in indoor environments.

The COVID-19 virus has been shown to spread through surfaces, droplets and when airborne. It's been known for years that indoor airborne spread is the most dominant concern for viruses. Droplets are usually large enough (between 20 and 100 microns in size) that they are pulled down by gravity, mitigated by social distancing and readily trapped by facial masks. When the particles are so small that they can become airborne (less than 10 microns) they are called aerosols which is currently agreed upon as the main method of COVID-19 spread. An insightful article published in April 2020 stated that if a vehicle window was opened three inches while the ventilation setting was on "flow through" mode the risk to passengers

was reduced by 90% (Allen et al., 2020). That began our understanding of how important simply improving ventilation and controlling indoor contaminants would be to creating an effective educational effort to help our clients of all income levels fight the spread of COVID-19. With that knowledge the LCHD started its Indoor Air Quality Program in July 2020.

Carbon dioxide (CO₂) levels indoors have been shown to be a surrogate value for determining the potential for viral spread. A higher level of CO₂ corresponds with more stagnant air while a lower value is viewed as "fresher" air. Outside air in Logan County has a CO₂ level of around 375 parts per million (ppm). Limiting outside air exchange to a maximum of 10% allows for adequate cooling, heating, and dehumidifying, thereby addressing the issues of cost and comfort. Improving air exchange alone can keep the CO₂ level below 1000 ppm but an ideal level is closer to 600 ppm (reducing the CO₂ level to below 600 ppm once ended a university tuberculosis outbreak, Miller, 2020). Other ways to improve indoor air quality are to increase the air changes per hour (ACH) by opening windows and doors to the outside. This can be especially effective when using exhaust fans to blow indoor air to the outside, and running the heating, ventilation, and air conditioning (HVAC) fan at the "On" setting instead of "Auto." An ACH of 3 is considered adequate but above 6 is ideal.

Controlling humidity is also still important because particles around 20 microns in size (those that can contain COVID-19, influenza, and other illness-causing pathogens) when they dry out can shrink in size to the under 10 microns airborne size. Viruses themselves survive longer than bacteria after

drying out so keeping humidity around 50% is recommended as a way to decrease spread by reducing their airborne numbers.

When a building's HVAC system can only provide 3 ACH, additional air exchanges can be accomplished by adding portable room air purifiers that have High-Efficiency Particulate Air (HEPA) rated filtration. Such filters can trap particles down to 0.1 microns in size, effectively removing 99.9% of airborne viruses, bacteria, pollen, and mold spores. Some commercial HVAC systems, if sized large enough to be able to handle the increased air flow resistance of the tighter filters, can replace regular air filters with ones that have a Minimum Efficiency Reporting Value (MERV) of at least 13 for the same effect. Particulate matter (PM) consists of the fine particles that float in the air, most too small to be seen with the naked eye. COVID-19 viruses can attach to particulate matter and be transported via those particles deep into the lungs when inhaled. Particulate matter of 2.5 microns or higher (PM_{2.5}) should be kept below 35 ug/m³ (micrograms per meter cubed) in indoor spaces through filtering and purification.

Besides ventilation and filtration, purification can be incorporated through the inclusion of UV light and ionization. While UV light between 200 to 280 nanometers successfully stops the reproduction of cells, the wavelength of 222 nanometers has been proven to be the safest because it is not absorbed by human skin and especially the eyes. Negatively charged particles (called ions) produced by ionization units are able to combine with positive particles in the air and neutralize them, or if not used will land on surfaces where they are still able to disinfect other particles when they eventually settle out of the air.

Ionization is effective because, unlike UV light bulbs which can be shielded from a pathogen or can dim over time to the point of dropping below an effective level so that they

must be replaced annually, ions use the interaction between negatively and positively charged ions. These ions attach to the membrane of the virus causing a chemical reaction rendering them unable to cause infection. They also envelop the virus and puncture the protein spikes on its membrane, neutralizing them by taking away hydrogen. They can also build up around the virus causing it to become large enough to be trapped by air filters. Ozone systems were not recommended due to the potential harmful effects to the lungs if not adequately dispersed before reentering a room after their use.

Meetings were conducted with local HVAC companies to discuss the available information and equipment to improve indoor environments to acceptable ranges. To be able to objectively measure basic indoor air quality and be able to make proper determinations, two affordable air meters were purchased, an Amprobe, Model CO₂-100, for CO₂ readings and a Langder Technology Color Screen Intelligent Air Detector to measure particulate matter levels. Weekly online meetings were also held with all of the superintendents of the local school districts, the multi-county Career Center and The Chamber of Commerce's business group. At our suggestion, several schools and food services installed ionization units on their building's main HVAC systems or placed them inside individual classroom ventilation units. In one room in the first school building tested, with 26 students and all windows closed and a window air conditioner recirculating the room in the air, a CO₂ reading of 4400 ppm was recorded! Exercise venues, churches, shops, and retail stores found ways to improve their ACHs such as by purging the air before and after being open and increasing air flow during use. Local businesses were encouraged on the LCHD website to submit applications which were reviewed by LCHD staff Environmental Health Specialists (EHSs)

to find ways to improve their indoor air quality levels and safely increase their COVID-19-reduced occupancies.

The LCHD determined that simple preventative measures could adequately improve indoor air quality. Those included installing ionization or UV light, opening doors and windows to introduce outside air, increasing air flow from HVAC units, and upgrading the filters within HVAC units to MERV-13 or HEPA-rated filters. These improvements were implemented in several school districts within the county. One school district even installed high-tech monitors within individual classrooms that altered the air flow through the air handlers based on the CO₂ level. With all these preventative measures in place, outbreaks within the school systems in Logan County were minimized and schools remained open for the 2020-2021 school year.

Testing was conducted by the LCHD for CO₂ and PM_{2.5}. Concentrations were noted from each monitoring device in individual rooms throughout a various array of businesses,

community resource buildings (schools, churches, police stations, fire stations, and senior care facilities), and private businesses. In addition, observations were made in individual rooms to determine what conditions could contribute to higher levels of CO₂ and PM_{2.5} (based on the number of individuals in the room, number of doors and windows and if they were open or closed). Initially, the monitoring devices were placed randomly in the room and data was collected after two to three minutes or when the devices had become acclimated to the conditions. This part of the procedure was evaluated and eventually revised

LCHD data actually showed that open windows in a room full of people could have a lower CO₂ level than a room with less people and no open windows. A classroom with 10 students and 2 windows closed had a CO₂ level of 1053 ppm. A classroom, two doors down, with between 20-25 students and with one window open had a CO₂ level of 553. Particulate matter concentrations did not vary

Clean Water

- Open cell foam media
- 2-foot soil depth credit
- Spray irrigation
- No aerator/blower
- Nitrogen reduction
- Residential and commercial
- NSF/ANSI Standard 40

Quanics
AeroCell

877.782.6427 ■ anuainternational.com

much per room based on the amount of people in the room and whether or not windows or doors were open during the time of testing. In another example, a classroom that had not been utilized at all during the day of testing had an initial CO₂ level of 872 ppm. The CO₂ monitor was left in the room in the same place and a window was opened. The room was left empty for five minutes and in that time the CO₂ level dropped to 720 ppm. The meter was then moved to a seat closer to the open window. It was left again for one minute and the CO₂ level dropped to 540 ppm. The same building had an average CO₂ level of 997 ppm in rooms that had only closed windows and doors. The same building had an average CO₂ level of 701 ppm if a room had at least one window or door open to the outside. An article from Shelly Miller of the University of Colorado at Boulder stated that CO₂ levels should be below 600 ppm for a given room (Miller, 2020). LCHD data showed that simply opening a window in a room can greatly decrease the level of CO₂ no matter the amount of people in the room. These results

were replicated in other buildings as well. Another school building had an average CO₂ level of 1221 ppm in rooms with closed windows, and a CO₂ level of 665 ppm for rooms with at least one window open.

Providing the schools with this knowledge led to many of the districts opening windows within the classrooms and even on buses, in addition to the other preventative measures that they had introduced. Windows were open for just five minutes at a time when weather conditions were not favorable. Our experience showed that placement of the monitoring devices in each room examined was critical. As expected, placing the device closer to a window resulted in lower concentrations of CO₂. Consequently, the procedure was changed to placing the devices away from open windows and vents from the building's HVAC system, since that skewed data and gave CO₂ concentrations lower than what was actually in the room.

Data was analyzed using an excel spreadsheet, where averages were extrapolated

TANGENT
LandSaver™ MBR

Septic Treatment Just Got Better

Our Membrane BioReactor (MBR) Provides State-of-the-art Wastewater Treatment

- Fully Treated Effluent
- Fecal and Odor Free
- 99.9999% Virus Reduction
- TSS < 1 mg/l
- cBOD < 5mg/l
- Turbidity < 0.2 NTU

NSF-40 Aerated Conventional Septic

TANGENT COMPANY LandSaver™ MBR

TANGENT COMPANY tangentcompany.com • 440.543.2775

from the collected raw data points. This allowed businesses to clearly see how good or bad the air flow was in their given building. This data was then compiled into word documents and sent to each facility where testing was conducted along with each room's observations. Charts were also created from the raw data in an excel sheet, so a visualization of the data could be portrayed in an easy-to-read format, further strengthening their understanding that indoor air quality is vital in controlling outbreaks of COVID-19.

The program allowed for peace of mind to many of our clients. They are now able to confidently retrofit their existing businesses and schools and also change their behaviors to introduce more fresh air into their indoor spaces. With the easy-to-use but accurate indoor air meters, our office is able to create a baseline level of readings and then return to

show the benefits of the actions employed by both public and private entities. Even individual households are able to take advantage of the information we have been able to provide on our website to improve the indoor air quality of their own homes. In addition to the usual recommendations to properly sanitize, wear masks and get vaccinated, much money, time and anxiety has been spared throughout Logan County in fighting against COVID-19 with the startup of our affordable Indoor Air Quality Program. For more information, contact Arie Pequignot, EHSIT at apequignot@co.logan.oh.us or (937) 651-6201. Acknowledgements include Boyd C. Hoddinott, MD, MPH, past Health Commissioner and current Medical Director. Timothy Smith, RESH, MS Director of Environmental Health.

References:

1. Allen, J., Spengler, J., & Corsi, R. (2020, April 22). Is there coronavirus in your car? here's how you can protect yourself. USA Today. Retrieved January 11, 2022, from <https://www.usatoday.com/story/opinion/2020/04/22/coronavirus-car-protect-yourself-column/5166146002/>
2. Miller, S. (2020, August 10). How to use ventilation and air filtration to prevent the spread of coronavirus indoors. The Conversation. Retrieved January 11, 2022, from <https://theconversation.com/how-to-use-ventilation-and-air-filtration-to-prevent-the-spread-of-coronavirus-indoors-143732>

<p>POLYLOK Innovations in Precast, Drainage & Wastewater Products Zabel® A Division of Polylok Inc.</p> <p>PL-68 PL-122 PL-525/625 GF-10 12x20 4x22 4x18 Filter Alarms & Switches</p> <p>POLYLOK BEST TECHNOLOGY</p>	<p>Extend & Lok (3", 4" & 6")</p> <ul style="list-style-type: none"> • Easy installation • No gluing necessary • Centers filter or tee under riser 	<p>Tank Risers (12", 20" & 24")</p> <p>6" Tall Risers 12" Tall Risers</p>	
	<p>Distribution Boxes</p>	<p>Hydro Shield</p> <ul style="list-style-type: none"> • One Hydro Shield fits 3 pipe sizes: 1", 1-1/4" & 1-1/2" or 1", 1-1/2" & 2" • Easy to install, just clip in. • 360 degree equal distribution 	
<p>Effluent Filters / Filter Alarms & Switches</p> <p>Covers: 12", 15", 18", 20", 24" & 30" Grates: 3", 4", 6", 12", 15", 18", 20" & 24"</p> <p>Covers & Grates (for Polylok Risers / D-Boxes & Corrugated Pipe)</p>	<p>STEP Systems</p>	<p>Flow Controller</p>	
<p>1-877-765-9565 / www.polylok.com</p>			



NEWLY APPROVED IN OHIO

Sand-Lined Wastewater Treatment System

- No Venting Required
- A Passive System – No Moving Parts
- Shallow System Maximizes Site Suitability, Reducing Sand Fill Requirements



Call about Demo and Training Opportunities

Zak Sherman, Area Sales Representative • (888) 231-9791 • zsherman@infiltratorwater.com

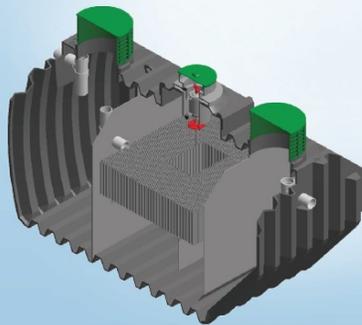


- Accu-Tab® Wastewater Tablets**
- Recognized global brand
 - Smaller tablet with beveled edges to minimize wicking
 - No imported ingredients; stearate free

- Illumi-Jet UV Disinfection Unit**
- Hermetically sealed electrical components
 - High capacity disinfection reservoir
 - Kapton seals improve serviceability



2012 Presidential E Award Recipient



- Residential & Commercial Treatment Plants**
- Concrete and rugged polyethylene material
 - 500-1500 GPD Residential Systems
 - 1500-300,000 GPD Commercial Systems
 - Up to 800 GPD in plastic design
 - A single moving part
 - Innovative design for easy system servicing
 - No filters to clog
 - Lifetime exchange program



www.jetincorp.com • 800.321.6960 • email@jetincorp.com

Announcements

Have a grant, educational opportunity, move, promotion, or other announcement you would like to share? Please email a member of the publications committee.

Open Positions (With an opening of 3/16/22)

- REHS/EHST
Holmes County General Health District
- Director of Environmental Health
Union County Health Department
- EH Intern
Public Health - Dayton & Montgomery County
- Environmental Health Director
Paulding County Health Department
- Certified Plumbing Inspector
Darke County Health Department
- REHS/EHST
Wayne County Health Department
- REHS/EHST
Mahoning County Public Health
- Community Health Worker
Toledo-Lucas County Health Department
- Environmental Health Director
New Philadelphia City Health Department
- REHS/EHST
Greene County Public Health
- Summer Intern
Medina County Board of Health
- REHS/EHST
Clark County Combined Health District
- REHS/EHST
Warren City Health District
- REHS
Ohio Department of Health
- REHS/EHST
Hancock Public Health

- EH Summer Internship
Kent City Health Department
- REHS
Delaware Public Health District
- Program Manager
Delaware Public Health District
- EH Summer Internship
Lorain County Public Health
- REHS/EHST
Toledo-Lucas County Health Department
- Student EH Worker
Cuyahoga Board of Health

Educational Opportunities

- OEHA AEC - April 14-15, 2022; Dublin, Ohio
- AOHC New Employee Training - April 7, 2022; Virtual
- AOHC LEHDS - April 20-21, 2022; Virtual
- AOHC Finance for Health Departments - May 2-3, 2022; Virtual
- AOHC Health Commissioner University - May 11-13, 2022; Columbus, Ohio
- 2022 Public Health Combined Conference - May 23-25, 2022; Columbus, Ohio
- AOHC LEHDS - June 14-15, 2022; Columbus, Ohio
- AOHC Finance for Health Departments - June 14-15, 2022; TBD
- AOHC New Employee Training - August 23, 2022; Delaware, Ohio
- AOHC Fall Conference - September 14-16, 2022; Dublin, Ohio

OEHA Committees & Chairs

Body Art

Sarah Badenhop, REHS
Columbus Public Health

Campground

Mark Janowich, REHS
Erie County Health Department

Food

Christina Ritchey Wilson, JD, REHS
Columbus Public Health

Greg Chumney, MPH, REHS
Licking County Health Department

Lead

Greg Putka, REHS
Lorain County Public Health

Private Water Systems

Randy Ruszkowski, REHS
Stark County Health Department

Sewage

Eric Cherry, REHS
Huron County Public Health

Solid Waste

Chuck De Jonckheere, REHS
Hamilton County Public Health

Swimming Pool, Spa, and Special Use Pool

Barry Grisez, REHS
Cuyahoga County Board of Health

Vector Control

Scott Pozna, REHS
Lorain County Health Department

Archives

Melissa Adams, REHS
Delaware Public Health District

Constitution & By-laws

Ken Sharkey, MPH, REHS
Cleveland Department of Public Health

Exhibits

Shannon Self, REHS
Delaware Public Health District

Professional Development

Steve Ruckman, MPH, REHS
Worthington Schools

Resolutions

Jennifer Wentzel, MPH, REHS
Public Health - Dayton & Montgomery County

Website

Garrett Guillozet, MPA, REHS, AEMT
Ross County Health District

Auditing

Jennifer Wentzel, MPH, REHS
Public Health - Dayton & Montgomery County

Awards & Recognition

Gus Dria, REHS
Canton City Health Department

George Eagle Scholarship

Jacqueline A. Gruza, MPH, BS, REHS
Greene County Public Health

Membership

Open

Nominations & Elections

Open

Public Affairs

Stephan Ruckman, MPH, REHS
Worthington Schools

Publications

Adam R. Howard, MPH, REHS
Delaware Public Health District

Concentrated Animal Feed Facility

Jason Menchhofer, MPH, REHS
Mercer County Health District

Ohio Public Health Advisory Board

Garrett Guillozet, MPA, REHS, AEMT
Ross County Health District

Ohio Public Health Partnership

Chad Brown, MPH, REHS
Licking County Health Department

Sewage Treatment System Technical Advisory Committee

Dan Lark, REHS
Lake County General Health District

OJEH
Ohio Environmental Health Association
2818 Annabelle Ct
Grove City, OH 43123

ADDRESS SERVICE REQUESTED

Non Profit Organization
US Postage
PAID
Grove City, OH 43123
Permit No.28