



# THE CLIME



## *Fellow Ecopreneurs,*

Welcome to our first newsletter of the year. It's 2023 now, which means we have to start actively "climbing" or engaging in the prevention and intervention of harmful climate change. Climbing must be more than just a side hustle if we are to achieve a 50% emissions reduction by 2030 and a carbon pollution-free electricity sector by 2035. That said, Semper Sky is diligently designing its aerospace laboratory to include regenerative agriculture, which will aid in reducing carbon dioxide while cooling the airfield environment. To realize our vision of an aerospace laboratory, we must mitigate the high fixed cost of entry

into the petroleum-centric world of aerospace, all while staying engaged in the community.

I am excited to announce that we are on track with our five strategic level focus areas for our first five years. Semper Sky is under contract with the Commonwealth of Virginia to monitor water quality using drones. We held a STEM education event on Martin Luther King Jr. Day where we used our new drone to collect water samples, and we taught community members of all ages a low cost method to filter water. As another venture, Semper Sky has partnered with Verizon Wireless to create a digital twin—or a virtual 3D duplicate of the real-world airfield—to track and manipulate airfield operations and maintenance through software.

In this issue, we will give you a closer look at our MLK Day event; share our Stafford County Q&A; recognize Black History Month; and offer some tips to reduce water pollution. You will also find links to our new Semper STEM internship and our Semper Sky merchandise. Thanks for climbing with us!

**Semper Fidelis,  
Ferguson "Juice" Dale**

## **SEMPER DIVERSITY**

Semper Sky's water monitoring practice and community STEM event took place on MLK Day. To help attendees see the correlation, Semper Sky's owner, Ferguson Dale shared a speech centered on diversity. A paraphrase of the speech is as follows:

*We are excited to share a sense of community as we reflect on Martin Luther King Junior's birthday and conduct water monitoring practice. Your presence today brings a form of diversity that creates a collective wisdom that can solve complex problems in Science, Technology, Engineering, and Math (STEM). We shall celebrate MLK Jr.'s contributions to diversity by using our differing ways of thinking to practice water monitoring. First, we must understand how diversity has come to represent how we think more than how we self-identify. The Bible says, "The Lord does not see as mortals see; they look on the outward appearance, but the Lord looks on the heart." Abraham Lincoln said, "Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived in Liberty, and dedicated to the proposition that all men are created equal." MLK Jr. said, "I have a dream that my four little children will one day live in a nation where they will not be judged by the color of their skin, but by the content of their character." Today, I say to you, "We can use our differences to solve the most complex problems in STEM."*

## **We're in the Zone!**

The drone zone that is. In December 2022, we acquired a Parrot ANAFI AI drone, which is the first of many Unmanned Aerial Vehicles Semper Sky will secure to increase our capabilities and competencies. We launched our Semper Sky emblazoned drone in January to do an actual water monitoring practice before Semper Sky's MLK Day event.

Ferguson Dale and Rob Turner, Stafford County Smith Lake Plant Manager, met Friday, January 13 to take a sample of raw water from Smith Lake. That sample was placed in a sterilized container and wrapped in a plastic containment bag for testing using Semper Sky's water test kit. Semper Sky's practice testing was unofficial and no data will be released or shared. However, in the future we will use our drone to fulfill our water monitoring contract with the Commonwealth of Virginia.

# SEMPER COMMUNITY

On January 16th, Semper Sky held a water monitoring practice at Smith Lake Park near Smith Lake Reservoir in Stafford County, Virginia. This practice included an MLK Day community event for Stafford County residents. Participants from organizations like Sacrificial Drone Systems LLC, Semper Sky LLC, The Semper Sky Foundation, The US Army Reserves, Freedom Church, and the Stafford Homeschool Association joined the STEM event.

The day of the event, Ferguson Dale and Semper Sky team members Forest Sentinella, John Steffen, Isaac "Ike" Beard, and Marcelo Ramos arrived at Smith Lake two hours early to assess the safety of the reservoir area. The team elected to hold the event in Smith Lake Park adjacent to the reservoir area due to safety concerns over temperature, wind limits for drone usage, challenging elevation changes for residents, and the possibility of young children wandering into restricted areas. Those concerns did not affect the water collection as the actual water monitoring practice took place on January 13th.

Ferguson opened the event by addressing the crowd with a speech centered on diversity. Then Ike, Semper Sky's drone pilot, flew a simulated water sample from Smith Lake over to Forest, Semper Sky's Sustainability and Water Monitoring expert. Ferguson was offered a drink of the water. But Forest stopped him from taking a sip before the water touched his lips. She then explained the dangers of drinking untreated water from a raw water source.

After the explanation, the crowd followed each step as Forest showed Ferguson how to create an inexpensive water filter. Upon completion, Forest poured raw water onto substances in the homemade filter. As the attendees waited for the water to run through the filter, Forest explained the history and usage of the Secchi Disk, which is a tool used to measure turbidity in water.

Rob Turner, Stafford County Smith Lake Plant Manager, helped participants understand how the small STEM experiment they were doing translated to the inner workings of Stafford County's Smith Lake Plant on a larger scale. Rob touched on the Virginia Department of Health's rigorous process of conducting multiple water quality tests. And he explained the State-level laboratory testing that takes place to keep Stafford County in compliance with the Commonwealth of Virginia's codes. Lastly, residents held a question and answer session with Rob to discuss how the Smith Lake plant treats their water. Special thanks to Stafford County for their access and participation.



Photos by: Beloved Photography by Heather

# question & answer

**Semper Sky recently held a water monitoring practice near the Smith Lake Reservoir in Stafford County, Virginia. Smith Lake is a 295 acre lake managed by Stafford County for the production of drinking water. Rob Turner, Stafford County Smith Lake Plant Manager, piqued our interest when he helped participants understand how Semper Sky's practice collection is a microcosm of the large-scale testing that the plant performs regularly. So, we spoke with Jessica Burger, Stafford County's Community Engagement Officer to learn more. Check out our Q&A below.**

**Stafford County performs hundreds of tests to provide "better-than-required" water. Can you briefly name and describe some of those tests?**

The most frequent tests we perform are for pH, E. Coli, and chlorine. We test both at the plant and throughout the distribution system, most importantly at the farthest reaches where a problem is most likely to occur. In addition, there are many other parameters required to be tested by The Virginia Department of Health (VDH). Each different class of contaminants is tested on a predetermined cycle. The testing performed by the County is summarized in the Water Quality Report (WQR) released each year around June for the previous year. All WQRs going back to 2009 are available on the Stafford Utilities website.

**Can citizens perform any of those tests and receive accurate results?**

Any citizen could send samples to a certified lab and receive accurate results. At home testing is less accurate and unreliable. If a citizen is not on Stafford water and has a well instead, it is highly recommended to have your water periodically tested.

**What do citizens usually do with their findings after monitoring samples from Virginia's waterways?**

Some Non-Governmental Organizations (NGOs) environmental groups have tested and published their own findings. Both the Department of Environmental Quality (DEQ) and VDH have ways for people to submit water quality concerns.

**What happens if there are discrepancies between citizen monitored results and DEQ results?**

We are not aware of this happening. Resampling would most likely be the first step, but that would be at DEQ's discretion.

**As required by the Virginia Department of Health and the Environmental Protection Agency, the Stafford County Department of Public Works Utilities presents a yearly Water Quality Report. What happens if the water provided does not meet all state and federal requirements?**

The Stafford County Department of Utilities ensures every year that our drinking water meets or exceeds every state and federal requirement that safeguards public health. The response to water quality issues would be dependent on the nature of the issue. All results are reported directly to the state, and reviewed. If there is an issue, VDH will work with the utility to bring the water back within standards and coordinate any additional actions necessary.

**What, if anything, can Ecopreneurs do to maintain or enhance water quality?**

Education and outreach may be the most important role that many people forget about. Reducing source water pollution from pesticides, herbicides, fertilizers, oil, and litter is one of the greatest challenges facing the water industry.

# BLACK women in aerospace

Since 2015, Ava Noelle Rogers (now 13), has portrayed notable Black women in a picture tribute during Black History Month. In recognition of the month long celebration of Black perseverance and accomplishments, we are sharing two of Ava's portrayals of Black women who worked hard to "make the impossible look routine."

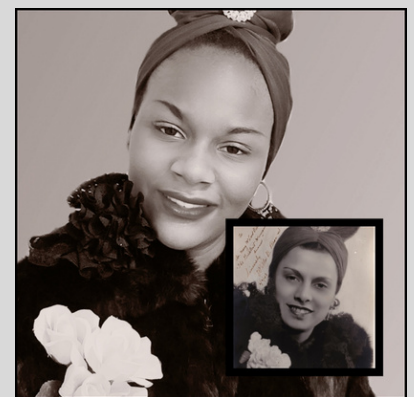
Photos by: Chauncia Boyd Rogers



Patricia S. Cowings is an aerospace psychophysicologist, author, and patent holder.

She was the first American woman to be trained as a scientist astronaut by NASA.

Patricia helps astronauts better adapt to space by studying the effects of gravity on human physiology and performance. She is known for developing motion sickness cures and helping people learn voluntary control of bodily functions.



Willa Beatrice Brown was an African-American aviator, lobbyist, teacher, activist, and woman of many firsts. She was the first Black woman to earn a pilot's license in the US, the first Black woman to run for US Congress, first Black officer in the Civil Air Patrol, and first woman in the US to have both a pilot's license and an aircraft mechanic's license. Willa also co-founded the first Black owned and operated private flight training academy in the US. Willa's training efforts created the Tuskegee Airmen.

# 7 WAYS TO REDUCE WATER POLLUTION

Source water pollution from things like pesticides, herbicides, fertilizers, oil, and litter is one of the greatest challenges facing the water industry. Preventing those contaminants from entering the water is the best way to reduce water pollution. This is what Ecopreneurs can do.

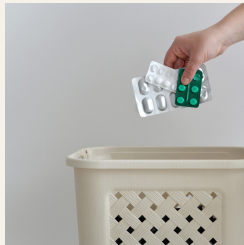


## Read the Label

Take heed to any environmental hazard warnings on pesticide and herbicide labels. If used in areas with permeable soil, the chemicals could contaminate source water. Consider replacing pesticides and herbicides with gentler products.

## Don't Flush Medicine

Pharmaceuticals accumulate in water and become difficult or impossible for wastewater treatment plants to remove. Instead of flushing unused meds, securely bag them and throw them away. Look for medical waste disposal programs in your area.



## Eliminate Litter

Litter accumulates, blocking and contaminating source water. Always dispose of your trash in a garbage can, never on the ground or in water. If you come across litter, pick it up. But remember to take safety precautions when handling waste.

## Protect Your Pipes

Oils and grease build up in your pipes and create blockages. Those blockages can cause home flooding, sewage backup, and wastewater contamination. Rather than pouring oil down drains or into the toilet, bag it and throw it away. Look into oil solidifying products for less mess.



## Avoid Leaf Litter

Leaves and grass can clog drains and waterways, so don't blow or rake yard waste into the streets. Instead, mulch, compost, or repurpose the foliage. You can also place the waste in biodegradable or recyclable bags and check your community's yard waste pickup schedule.

## Check the Weather

If you lay fertilizer before it rains, chemicals can run off into water sources. Look out for precipitation and use fertilizer on dry days. Try to keep the process neat to reduce drifting.



## Be Free

Phosphates are low toxicity to humans, but they cause nutrient pollution in the environment and increase harmful algae growth in water. Some phosphorus cleaning products have been banned in the US, but others are still being sold. Purchase Phosphate-Free items.

# SHORTAGE OR SHORTSIGHTED?



The aviation industry took a big hit during the early months of the ongoing COVID pandemic, when the demand for air travel dropped by more than 90%. In an effort to reduce revenue loss, airlines retired, furloughed, and laid off pilots. Other pilots left their jobs for various reasons—some pandemic related. Ferguson Dale acknowledges the existing pilot shortage, but has a different view on increasing recruitment. Here's his take.

"The world claims the aviation industry is experiencing a pilot shortage. I say this is a talent management issue. Several underserved populations house talented, cognitively diverse aviation candidates who need only a chance for their abilities to be discovered. Many talent scouts look for academic scores from aptitude tests asking questions exclusive of cognitive diversity. I believe that other skills can offset high academic achievement. Semper Sky prefers the two-hands test: Fly more than once with ecopreneurs who possess soft skills and an interest in aviation, then find a safe space to give them the flight controls. If more recruiters tried that method and placed higher value on soft skills, cognitively diverse talent would increase the number of potential pilots."

## In Case You Were Wondering

"Regenerative agriculture is a conservation and rehabilitation approach to food and farming systems. It focuses on topsoil regeneration, increasing biodiversity, improving the water cycle, enhancing ecosystem services, supporting biosequestration, increasing resilience to climate change, and strengthening the health and vitality of farm soil."

In simpler terms, regenerative agriculture is farming with sustainable techniques. Those techniques vary, but in general serve to mitigate climate change by reducing or removing carbon dioxide emissions. Regenerative agriculture also works to ensure that future generations will have the food and textile sources they need.

Source: Wikipedia

## SEMPER STEM

# INTERNSHIP



At Semper Sky we value academic excellence, but we believe that perfect scores and high GPAs should not be the greatest determinants for awarding opportunities. We look for candidates with skills and characteristics that allow them to interact well and accomplish tasks. Do you have an interest in STEM and possess soft skills like communication, adaptability, time management, and critical thinking? If so, apply for our summer internship [here](#).

Browse our selection of Semper Sky clothing and merchandise for the whole family in our [Semper Sky Store](#).

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