AQUAGGA, INC.

Ending toxic PFAS 'forever chemicals' in water

aquagga.com Tacoma, Washington B2B Hardware Science & R&D Sustainability Clean Tech

Highlights

1. ♻️ $80B addressable market for PFAS in the US by 2025
2. 🦬 10 employees (6 full-time) & pilot system currently operational in Tacoma, WA
3. 🪨 Awarded $3.57M to date in contracts, grants, and awards
4. 🍹 Raised over $600K from private angel funding
5. 🤩 $700K Revenue in 2022, Secured >$2M Revenue for 2023
6. 🥳 14 March 2023 - EPA announced national regulations – multi$Billion market size now guaranteed

Our Team

Chris Woodruff Co-Founder & COO, Interim CEO

Chris Woodruff brings a blend of mechanical engineering, project management, and operational experience spanning the construction, aerospace, and consumer electronics industries.

Brian Pinkard Co-Founder & CTO

Dr. Brian Pinkard has previously spearheaded efforts at the University of Washington to develop mobile hydrothermal systems for the destruction of bulk

chemical weapon stockpiles.

Mike Czerski Senior Mechanical Engineer

Mike Czerski has worked on a wide variety of projects ranging from football helmet design to the design of an experimental combustion reactor. He adds a solid background of product development, test procedure design, and hands-on experience.

Ariella Halevi Mechanical Design Engineer

Ariella Halevi is a Solidworks master, has experience with consumer product design and completed an AmeriCorps service term. Furthermore, she is adept at thinking about how Aquagga develops its "Zebra" ethos.

Cody Thomsen Mechanical Engineer

Cody Thomsen is a recent graduate from the University of Washington Mechanical Engineering program, currently working to complete his Master's in Mechanical Engineering while supporting Aquagga's product development efforts.

Hilary Joyner Senior Marketing Manager

Hilary is a marketing professional with more than a decade of experience in content creation, project management, and strategy development. She is excited to use her skills in marketing to further drive Aquagga's mission of positive social impact.

Calvin Rhodes Mechanical Design Engineer

Calvin Rhodes is a multidisciplinary Mechanical Engineer working on Engineering Development and Project Management at Aquagga.

Somnath Mukherjee Senior Controls Engineer

Somnath (Som) holds a Master's degree in Electrical Engineering from the University of Washington, Seattle. He has over a decade of experience working in thermal and gas power plants in India.

Gus Millevolte Research Engineer

Gus has spent the last decade studying neural control systems and self-learning algorithms for control optimization. He received his undergraduate in Neurobiology & EE from UW-Madison and masters from the University of Washington.

Quinn Huelsbeck Operations Manager

Quinn is a dedicated Lean/Continuous Improvement Leader who excels at using proven methods and cutting-edge technology to successfully cut costs, streamline operations, and increase productivity.

Angie Karsama Marketing Manager

Angie Karsama is a B2B marketing professional who brings a wealth of knowledge in technical marketing, business development, content strategy, and social media. She enjoys crafting compelling narratives that resonate with target audiences.

Conrad Austin Test Engineer

Annie Heble Postdoctoral Research Fellow

Josh Arvin Mechanical Engineer

Juliet Veskova Lab Technician

Daniel Nelson Director of Industrial Sales

Nigel Sharp Executive Advisor

Serial entrepreneur, technologist, and Techstars Alum, Nigel Sharp has held successive Entrepreneur in Residence roles at the University of Colorado Boulder, and the University of Alaska and co-founded 3 venture-backed startups.

WHAT IS PFAS?

PFAS (Per- and polyfluoroalkyl substances) are highly-toxic man-made “forever” chemicals that have migrated into the air, soil, and water. The strength of the carbon-fluorine bond makes them nearly impossible to destroy, making environmental remediation difficult.

Today, nearly all Americans have PFAS in their blood, with over 200 million people potentially drinking PFAS-impacted water; PFAS have been linked to cancer, immune-system disruption, thyroid disease, elevated cholesterol, fertility impacts, low birth rate, and damage to the liver and kidneys, posing grave health concerns on a global scale.

> ***Don't forget to hit the "Watch for Updates" (or Like) button at the top right of the page to keep up with the latest Aquagga-related news.***

WHO DOES PFAS EFFECT?

Our first pilot series unit has been aptly named “Kellyrose”, her namesake from Kelly Rose Mclaughlin, an inspirational figure early in the formative story of Aquagga, who emotionally spoke of the devastating impact PFAS has had on her **family and community**.

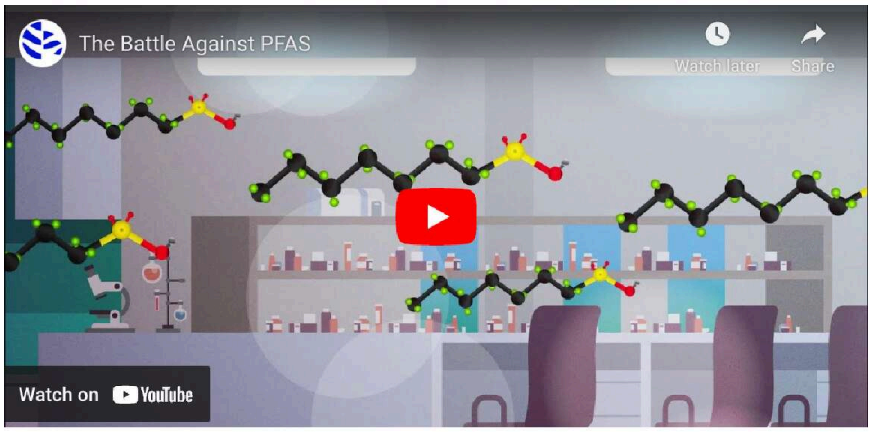
The experience pushed the Alaskan café and gallery owner into another full-time job: advocacy. McLaughlin organized the Gustavus PFAS Action Coalition, and advocacy to the officials somewhat stalled until there are clear and affordable solutions to the problem.

McLaughlin said her blood has tested at 10,000 and 7,000 thousand parts per trillion — a number that makes PFAS experts squirm. She said her young son’s blood is double that. The ask to the Aquagga co-founders was simple, if your technology and team can help then please help. A charged cry that no professional engineer lightly dismisses knowing our duty and responsibility to society.

THE BATTLE AGAINST THE 'FOREVER CHEMICALS'

With PFAS, dilution is not the solution, concentration and ultimate destruction are! These so-called "forever chemicals" are potentially carcinogenic and harmful to human reproduction and development, even at the lowest detectable levels. For over sixty years, PFAS has been used in industrial firefighting foams, leading to water and soil contamination at every military base and commercial airport and many oil & gas facilities around the globe.

> *The battle against PFAS is on!* 🌱🌾



Additionally, PFAS have been widely used in consumer goods (such as non-stick pans and fast food packaging), and are now so widespread that 99% of Americans have detectable levels of PFAS in their blood. If PFAS are not captured and destroyed, they continue to circulate in our ecosystems, watersheds, and our bodies, as they never break down naturally.

AQUAGGA TO THE RESCUE

High temperatures and pressures are used to break the stubborn carbon-fluorine bond which holds PFAS molecules together, and which is one of the strongest chemical bonds that exist. By completely breaking all of the carbon-fluorine bonds (known as defluorination, or mineralization) we produce nothing but a small amount of fluoride, clean water, and carbon dioxide.

The underlying Hydrothermal Alkaline Treatment (HALT) technology has been

developed with multiple leading research institutions and academics - Aquagga holds an extensive Intellectual Property Portfolio, with **multiple peer reviewed publications**, demonstrating HALT to be one of the most effective ways of breaking down long-chain, short-chain and ultra-short chain PFAS molecules.

> ***How does our tech work? Think "pressure cooker on steroids".***

ALREADY IN THE MARKET

Aquagga actively participates in a variety of water industry conferences and tradeshows. On top of providing strategic industry relations and potential customers, these events provide a means to spread the word on PFAS destruction. From attending our first events in 2019, to co-hosting in 2022, we have become familiar faces in the water industry and made a lot of friends along the way. As our team grows in 2023, so shall our events calendar. We are excited to continue making our mark on the industry!

Upcoming events

Name	When	Where	
American Water Summit	January 24, 2023	Los Angeles, CA	THE 11TH AMERICAN WATER SUMMIT
NW Remediation Conference	May 2, 2023	Tacoma, WA	Northwest Remediation Conference
Battelle Bioremediation Symposium	May 8, 2023	Austin, TX	BATTELLE
BlueTech Forum	May 17, 2023	Edinburgh, Scotland	BlueTech FORUM
WEFTEC 2023	September 30, 2023	Chicago, IL	weftec the water quality event
RemTEC & EC Summit	October 3, 2023	Westminster, CO	REMTEC & EMERGING CONTAMINANTS SUMMIT

> ***Once you're invested, feel free to come check in on us!***

Our Calendar of events for 2023

Weekly Update (03/20/2023)

PFAS in the News

The U.S. Environmental Protection Agency (EPA) recently announced the first-ever national drinking water standard for six per- and polyfluoroalkyl substances (PFAS). This announcement has been covered by news agencies around the globe including BBC, New York Times, The Associated Press, and NPR.

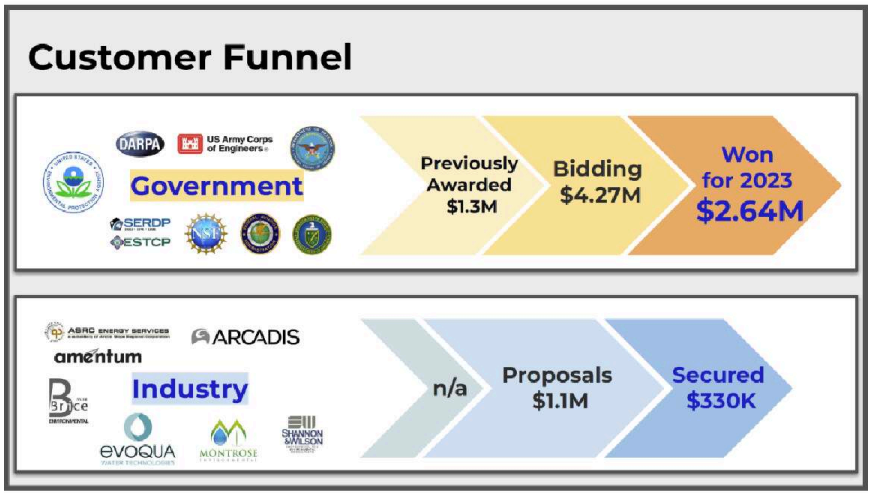
These new standards set a baseline that is challenging but achievable. Aquagga's technology works to destroy PFAS and we are thrilled about the impact it will have for generations to come.

TRACTION

We're fortunate to have started with a lot of non-dilutive grant based funding for the technology, which has opened doors to the opportunity for sole-source government contracts where we currently have 7 Federal agencies paying us to demonstrate our technologies and remediate current PFAS impacted sites.

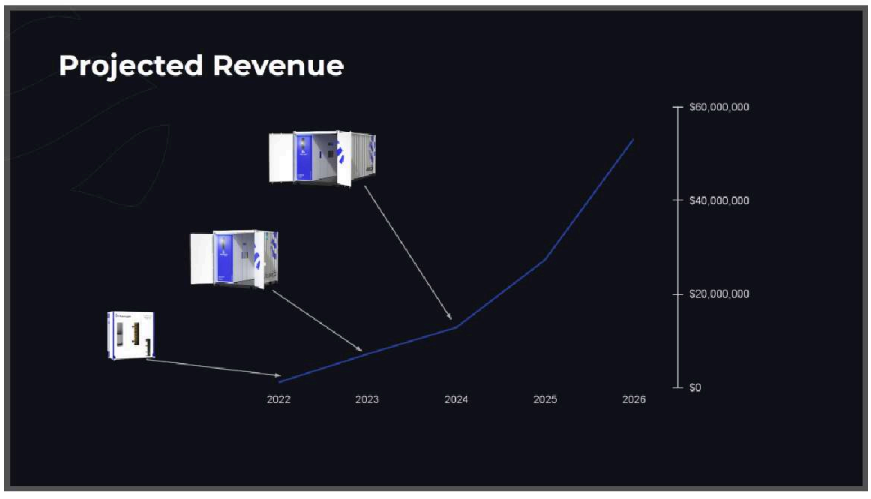
In addition Industry has been taking notice and multiple projects with large national and multi-national firms are underway or in discussion. With a multitude of letters of support and intent, and real revenue secured.

Most importantly in 2023, Aquagga is profitable and secure with at least 24 months worth of projects and revenue.



REVENUE PROJECTIONS

No projection is ever right, but the PFAS Market is estimated to be worth over $80B with PFAS Destruction and Disposal a significant portion of that. We're one of the first to market with a solution, and have a diversified stream of revenue already. Some would say we're being too conservative in the following image... we'd just say hardware is hard, and it takes longer than you think, so getting to a $50 Million a year business feels conservative but confidently achievable within the next 3-4 years!



The projections mentioned above are forward-looking and cannot be guaranteed.

FEATURED IN NATIONAL PRESS

GeekWire - *"Sustainability startups face off in the final episode of GeekWire's Elevator Pitch"*

> *"Fascinating technology...solving a real pain point, which is exciting to see." - Anthony Bontrager, Managing Director, Westriver Group*

Tacoma Weekly - *"Start-Up Company Helps Revolutionize Clean Water"*

> *"...Aquagga was founded by brilliant minds that came together in 2019 under their common desire to make a positive environmental and social impact..."*

Forge - *Aquagga: Success Story"*

> *"Aquagga has developed an award-winning technology to safely and effectively destroy PFAS chemicals in water and other waste streams."*

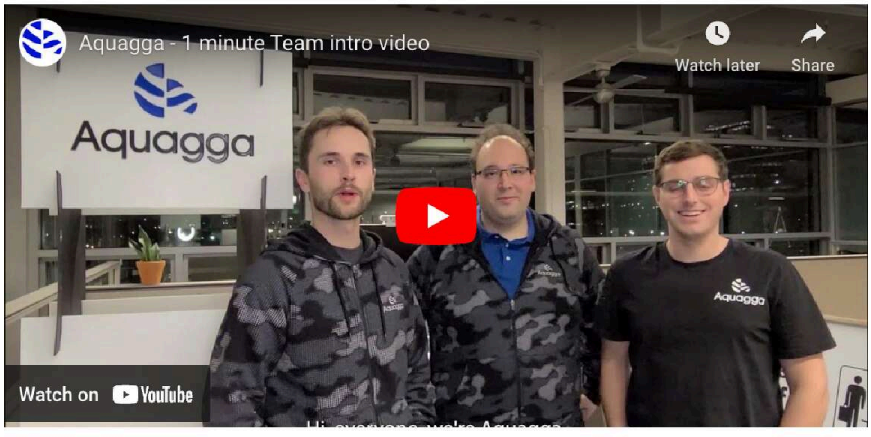
Wastewater Digest - *"4 Companies Improving Technologies with EPA Funding"*

> *"Aquagga's continuous HALT reactor destruction tests showed faster destruction rates than similar batch reactor systems."*

WC&C - *"11 Water Treatment Start-Ups to Watch"*

> *"Aquagga's Hydrothermal Alkaline Treatment (HALT) technology was awarded first place in in the EPA's Innovative Ways to Destroy PFAS Challenge."*

IT TAKES THE RIGHT HERD 🦓



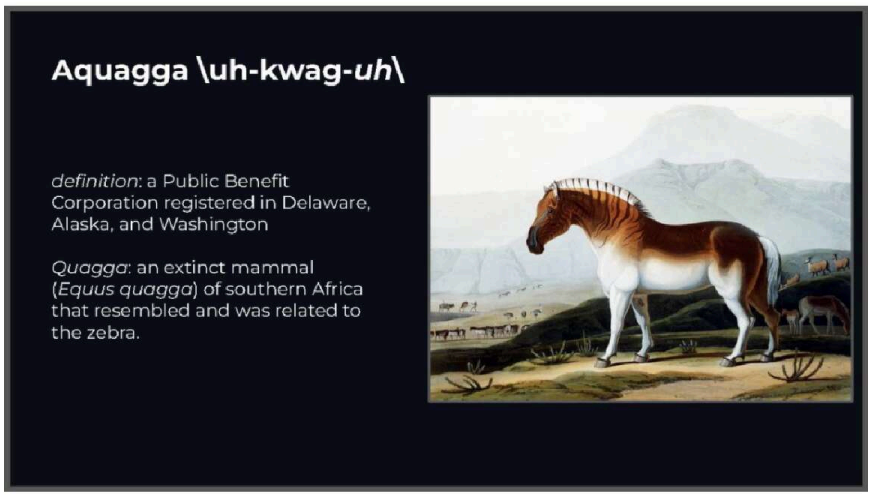
The three Co-Founders, Nigel, Brian and Chris aligned around a mission and Aquagga was born late 2019, and found it's feet at the early stages of the pandemic within a Tacoma Maritime Blue small business incubator who offered up a wetlab to run the very first experiments. The co-founders spent the first 18 months of the company really understanding the customer need and the problem.

The technology spun out of the partnered University's turned out to be an excellent fit, and the team has been growing steadily since, each bringing diverse skillsets, but all united in the mission and driven to make an impact.

We're tied heavily into the Pacific-Northwest community, stretching from Alaska to Idaho, with our headquarters in Tacoma, WA (a little south of Seattle). We welcome folks to come meet us at our watering hole (i.e. co-working space in downtown Tacoma).

AQUAGGA - A 'WATER ZEBRA' AT HEART

It seems like everyone has heard of 'Unicorn' companies these days - disruptive, rapid growth, billion dollar companies seem to make the news regularly. But do they always create a positive impact on the world? The motto 'move fast and break things' might not be the best mantra for a company working on solving legacy environmental and water contamination issues. In fact, it's probably the type of thinking that got us here in the first place.



A 'quagga' is an extinct relative of the African Zebra. Aquagga endeavors to be a 'Zebra' company, defined as a company that wears multiple stripes, and equally weights environmental and social impact with profit and growth. We are

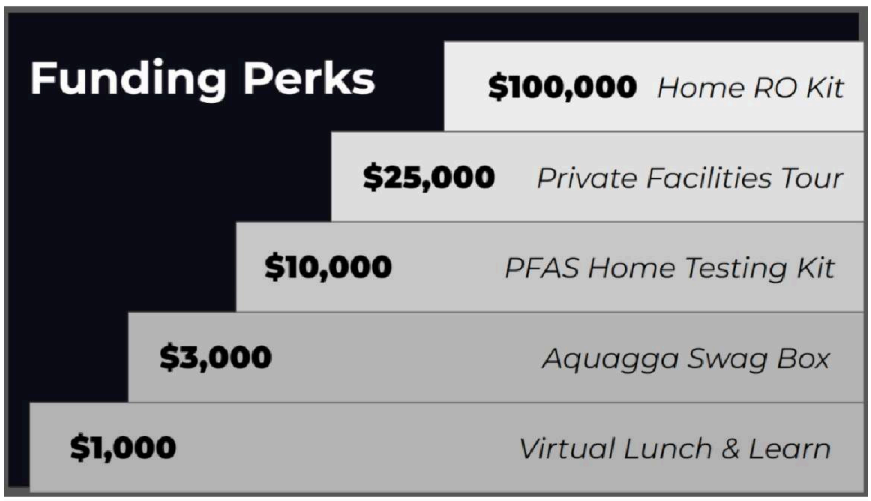
registered as a Public Benefit Corporation to reflect this. We care so much about our impact mission that we've literally baked it into our name.

WHY INVEST?

We're confident you'll see a return, this isn't going to be a crazy crypto journey with a 1000x return (and thankfully Aquagga isn't as speculative), instead we're expecting multiples at the current valuation cap of 4-10x, we're a genuine team, on a genuine mission, to make a genuine impact.

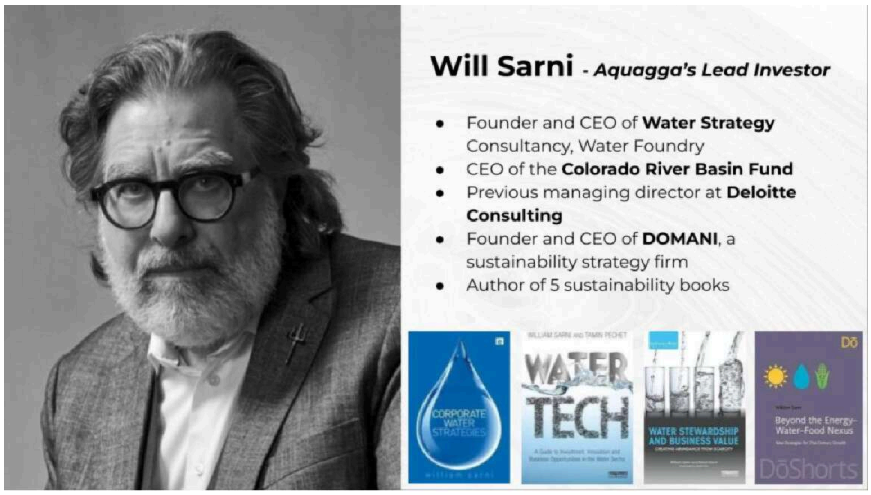
We want you to know you're helping many generations to come by investing, every gallon of PFAS destroyed would otherwise contaminate millions of gallons of water at some point in the future, and the communities, animals and food that all link back to that water system.

If you work in the industry, you also know PFAS is the hot topic issue and will be increasingly so for the coming years, so getting onto that wave, as it's surging, by betting on a team that know what they are doing is the one of the biggest opportunities in this sector right now.



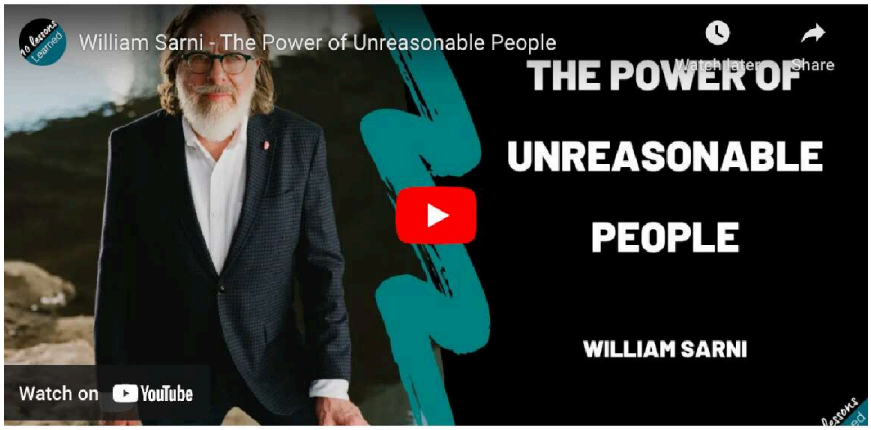
Beyond that we're offering some additional perks, especially to those writing the bigger checks! We'd love to see our WeFunder investor committing to social and environmental impact and writing $1,000-5,000 checks on average, and the accredited investors committing with at least $25K.

OUR LEAD INVESTOR KNOWS WATER



William (Will) Sarni is a recognized expert and thought leader on water management and water-related sustainability. He is the Founder and Managing Director of Water Foundry, LLC. He's also an author of several books including "Water Management in 2020" and "The Business of Water Stewardship" which are considered as reference books on the topic. He is a frequent speaker on water management and sustainability, and has been quoted in media outlets including The New York Times, Wall Street Journal, Forbes, and Bloomberg.

More importantly in relation to Aquagga he's part of the inspiration for at least one of the Co-founders (CEO Nigel Sharp) to get involved in the water and environmental sector, and continues to be an advisor and inspiration to entrepreneurs globally.



LEARN MORE ABOUT PFAS

John Oliver on his show Last Week Tonight discusses "PFAS — a class of chemicals linked to an array of health issues — and why their widespread use isn't as magical as it may seem." (⚠️Strong language warning!)

This is a really great both funny and informative 20 minute intro to PFAS, and we take one notable exception to Mr Oliver's episode. He said no one can get rid of them, and we'd politely disagree and say "almost no one"!

ADDITIONAL CONTENT 🔍

Competition

	Clean Harbors / Veolia (Incineration)	ONVECTOR DMax Plasma (Plasma Destruction)	Aclarity / AECOM (Electrochemical Oxidation)	374water / Battelle (Supercritical Water Oxidation)	Aquagga (Hydrothermal Treatment)
Effective	✗	✓	✓	✓✓✓	✓✓✓
High Throughput	✓✓	✗	✗	✗	✓✓
Field Deployable	✗	✓✓	✓	✓	✓✓✓
Scalable	✗	✓	✗	✓	✓✓
Efficient	✓	✗	✗	✗	✓✓
Future Availability	✗	✓	✓	✓✓	✓✓✓

Market Size

$5 - $7 per gallon	PFAS-Rich Liquid Disposal
>100,000 gallons per year	Volumes for a Standard Site
>500 today >20,000 by 2025	Active PFAS Remediation Sites

PFAS Cleanup (USA*)	$80B+ by 2025
PFAS Destruction	$4B+ by 2025
Obtainable Market Share	$400M+ by 2030

*Referenced Dawnbreaker PFAS Market Report available upon request

Progress in pictures

Progress in pictures

We continue to build relationships and support for multiple facets of our business, note Aquagga has completed 5 business acceleration and training programs, with notable achievements along the way being ranked as the top business in both the Cascadia Cleantech Accelerator and The Water Council's Brew 2.0 Program.

If you're one of our friends within one of these organizations, join us and invest now! We're not planning on the company getting any cheaper haha.. 😁

Earlier Concept Design of our 2nd generation system, Eleanor our first Steed Series Unit, under construction right now at our warehouse.

Eleanor will dwarf our first Kellyrose system (shown below) in capacity and throughput (yet take up the same footprint), Kellyrose is already profitable and is operating every week breaking down PFAS and making a small but significant impact.

If you're still undecided, hit the "Watch for Updates" (or Like) button at the top of this page, and we'll post out opportunities to learn more and hear direct from the team.