YB TECHNOLOGIES, LLC
Breaking the PFAS Cycle and
Halting Acid Mine Drainage

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Contact Information:
YB Technologies, LLC
Email: info@ybtechs.com
Website: www.ybtechs.com

PFAS DESTRUCTION FIRM CELEBRATES FIRST ANNIVERSARY

Low cost, low energy AMEOX® technology for breaking the cycle of "forever chemicals" developed by Michigan native

Wyoming, Michigan, June 29, 2023—YB Technologies, LLC (YBT), marked its 1-year anniversary of successful full-scale PFAS destruction earlier this month in the Great Lakes State of Michigan. The firm's AMEOX® technology was commercially launched in June of last year at Waste Recovery Systems, Inc. (WRS), an industrial waste contractor, proving its power to destroy PFAS, known as "forever chemicals," captured by activated carbon media from the treatment of landfill leachate, groundwater, and drinking water.

YB Technologies' founder Karl Yost has decades of experience treating water, waste, and other contaminated materials at sites in Michigan and across the country. Several years ago, he identified the need to break the cycle of PFAS circulating through water and soil, and, in particular, the media used to clean water. "It's not enough to transfer PFAS from one place to another," says Yost. "Until now, there were no simple or safe ways to discard the exhausted carbon media typically used to remove PFAS from water."

Ideally, granular activated carbon, the most widely recognized technique to remove most contaminants from drinking and other water types, should be treated onsite for PFAS, then returned to water treatment service. Yost adds, "Our process not only destroys PFAS in carbon, it regenerates, or, as one of our clients likes to say, it 'revitalizes' the carbon so it can be re-used."

YBT and WRS teamed up to demonstrate the effectiveness of this approach last year by returning AMEOX®-treated carbon to PFAS removal service for landfill leachate. Sam Biggio, WRS general manager and co-owner, confirms the capabilities of the system. "The AMEOX technology not only destroys PFAS at our facility and allows us to re-use our carbon, it removes other pollutants coming from the leachate we process so the carbon lasts longer."

Iron is a particular problem. Biggio explains, "it fouls the carbon and prevents PFAS from being removed." He adds, "We don't need to bring the PFAS level in the carbon down to zero, all we have to do is treat it enough, so our carbon has the capacity to be used again and again to remove PFAS from leachate water." Handling PFAS safely and cost-effectively is key to some of the specialty work WRS performs, along with waste removal and disposal, bulk hauling, industrial cleaning, cured in-pipe services, sewer maintenance, hydro-excavation and more.

For decades, PFAS—Per- and Polyfluoroalkyl substances—have been used in everyday goods such as cookware, carpeting, clothing, make-up, cleaning products, and food packaging, as well as firefighting foam. The compounds eventually leach into the environment as the products are used or discarded. Unfortunately, the incredibly strong bonds between carbon and fluorine in PFAS allow for all its uses, but they also cause the substances to break down very slowly or not at all and make treatment difficult. Worse, migratory PFAS accumulates in our bodies even when present at extremely low levels in the food we eat, the water we drink, and the products we use.

Across the country, there is growing awareness of the threat these substances pose to human health. The Centers for Disease Control has identified possible relationships between PFAS and increased cholesterol, liver damage, kidney disease, decreased vaccine response, elevated pregnancy risks, and multiple forms of cancer. The National Institutes of Health points to one study that demonstrates PFAS chemicals can be found in the blood of 97% of Americans. In September 2022, the U.S. Environmental Protection Agency proposed PFOA and PFOS (two PFAS compounds) be regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA – "Superfund") as hazardous substances. In March of this year, the EPA proposed six of the thousands of PFAS compounds be included in the National Primary Drinking Water Regulation (NPDWR).

Previously, breaking the PFAS cycle was problematic and costly due to the substances' tenacity. YB Technologies' AMEOX® systems utilize a unique combination of electrochemical oxidation, cavitation, ultrasonic energy, and other inducements to effectively break the carbon-fluorine bonds and destroy PFAS compounds with low energy and cost. Treated carbon media can then be reused, recycled, or disposed cost-effectively, and without worry the chemicals will persist "forever."

YBT's Director of Administration, Jessi White, is enthusiastic about future plans. "The small size of our treatment equipment and its ease and low cost of operation allow the systems to align well with our water treatment clients' needs." AMEOX® equipment was designed, first fabricated by Blue Q Labs of Lebanon, OR, and then prototyped at full-scale at a carbon processing facility. Systems are skid-mounted for housing in a transportable shipping container, mobile trailer, or small building, requiring just a 4' x 10' footprint and minimal electrical power for smooth, closed-loop operation at low pressure and ambient temperature. White adds, "We are very excited about our Zone Contractor program to deliver treatment systems across the country with production units now coming out of assembly." YBT is currently manufacturing six AMEOX® systems at its facility in Anacortes, Washington, for commercial deployment availability within the next month.

Born and raised in the Grand Rapids area and a graduate of Albion College, Yost recognizes Michigan's national and worldwide leadership in investigating and addressing PFAS issues. "It has been gratifying this past year to bring our equipment and technology to Michigan for its first commercial applications," he notes. "We are thankful for the interest and support we've received from across the state. We are particularly grateful for the opportunity to have our technology deployed at Waste Recovery Systems, knowing their outstanding reputation in the waste management industry."

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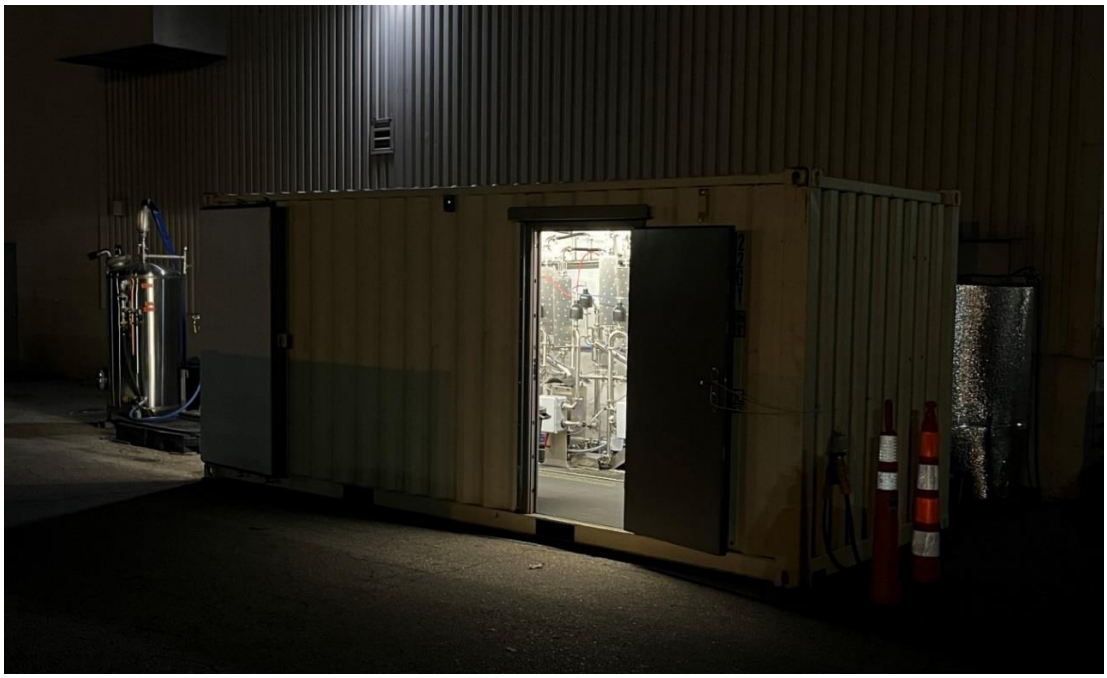
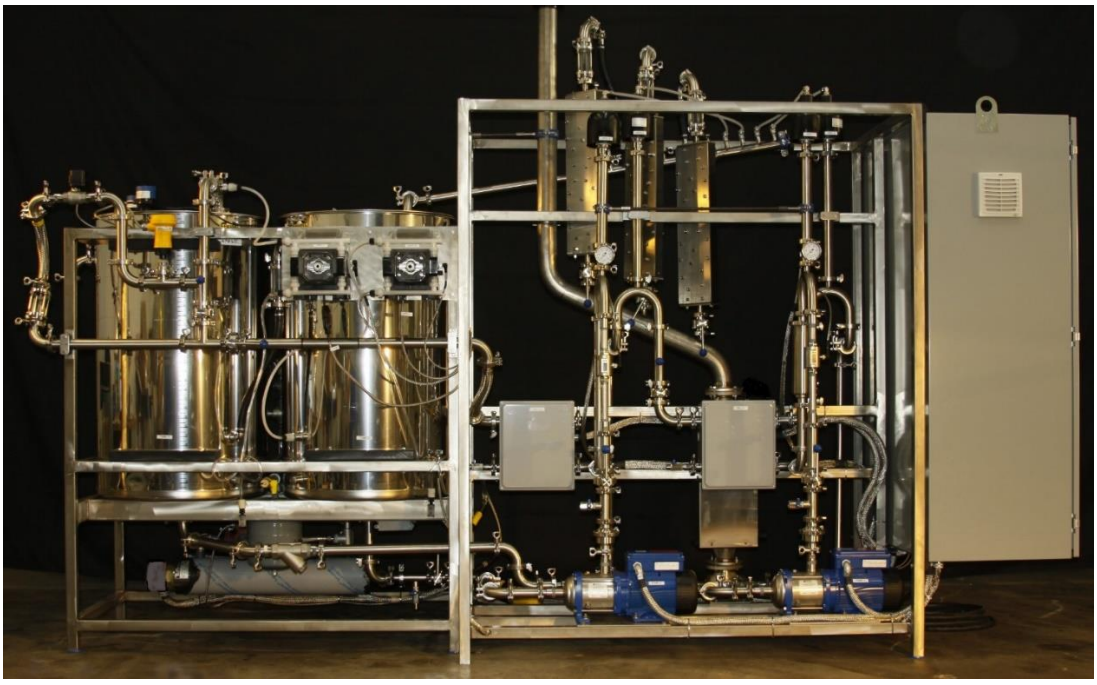
Unique among PFAS treatment companies, YB Technologies, LLC combines proven methods with multiple breakthrough technologies to destroy PFAS and sequester "forever chemicals," halting their circulation through the environment. The AMEOX® technology is patented/patents-pending in the US and abroad. For more information, visit www.ybtechs.com.

Images for Press Release:
Photos courtesy of YB Technologies, LLC

Operating AMEOX® Dual Unit destroying PFAS in GAC and removing iron at low power (<50amps), low pressure (<100psi) and ambient temperature (100oF).
(Waste Recovery Systems, Inc., Wyoming, MI – June 2022)



Night-time AMEOX® processing of PFAS in Granular Activated Carbon (GAC)
within in standard size water treatment cell (left)
(WRS, Wyoming, MI – October 2022)



AMEOX® Single Unit assembled for deployment to process
exhausted GAC and liquid concentrates containing PFAS.
(YB Technologies, LLC., Anacortes, WA - June 2023)