374Water Announces its AirSCWO Technology is Successful in Eliminating LNAPL-Based PFAS from Impacted Groundwater Samples from the U.S. Navy

Results Underscore the Robustness of AirSCWO Technology in Eliminating PFAS and Transforming Complex Waste Streams

DURHAM, N.C., March 18, 2025 (GLOBE NEWSWIRE) -- 374Water Inc. (NASDAQ: SCWO) ("374Water") (the "Company"), a global leader in waste destruction technology for the municipal, federal, and industrial markets, today announced the successful treatment and destruction of Light Non-Aqueous Phase Liquid (LNAPL) impacted with Per- and Polyfluoroalkyl Substances (PFAS) using the Company's proprietary AirSCWO technology. LNAPL refers to liquids lighter than water - generally petroleum hydrocarbon liquids like gasoline, diesel, and other petroleum products. Sponsored by Navy Environmental Sustainability Development to Integration (NESDI) Program, and conducted in coordination with the Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) and GSI Environmental Inc., this demonstration of the AirSCWO waste destruction technology is part of the Navy's ongoing investigation into remediation technologies for Contaminants of Emerging Concern (CECs).

Demonstration Highlights:

- Groundwater impacted by both petroleum products, namely light non-aqueous phase liquids (LNAPLs), and per- and polyfluoroalkyl substances (PFAS) poses risks to public health and resource management.
- Supercritical water oxidation (SCWO) is a destruction technology that can address traditional pitfalls of LNPAL/PFAS treatment options.
- 374Water's AirSCWO technology eliminated PFAS from the US Navy's LNAPL samples to non-detect levels. This process also achieved a near-complete breakdown of the NAPL, with >99.9% Chemical Oxygen Demand (COD) removal, meaning almost all of the oxygen-consuming pollutants were destroyed, leaving behind a safe, inert effluent.

"This successful destruction demonstration underscores the versatility and robustness of our AirSCWO technology to treat PFAS within the complex matrix of NAPL," said Chris Gannon, President and CEO of 374Water. "The ability to eliminate these persistent chemicals in such challenging environments highlights our commitment to advancing environmental safety through cutting-edge solutions. We are excited to collaborate with federal agencies to advance and redefine the standards for hazardous waste management and waste destruction, ensuring a safer and more sustainable future."

Challenge:

PFAS-impacted LNAPL represents a potential large-scale risk in soil through drinking water, construction projects, and other land use. Remediation of LNAPL impacted soil is a costly and difficult process, requiring innovative approaches and technologies to effectively reduce the environmental impact and protect public health:

- Petroleum sites can release petroleum products which enter the soil and/or groundwater, potentially affecting vital ecosystems and water resources.
- Remediating soil and groundwater tables impacted with these petroleum products is challenging because the products can be light non-aqueous phase liquids (LNAPLs) which are highly mobile and therefore spread easily through the environment.
- Per-and polyfluoroalkyl substances (PFAS), which are persistent and potentially toxic recalcitrant substances, can be found co-located with the NAPL, thereby exacerbating the threat of the LNAPL spread.
- Federal law (40 CFR 280.64) requires the removal of NAPLs to "the maximum extent possible", with over 20 available treatment technologies to date.

- While existing ex-situ treatment technologies succeed in physically removing LNAPL from the soil and/or water table, they result in volumes of impacted waste requiring further treatment.

Managing complex waste streams like LNAPL, especially those impacted with PFAS, pose significant environmental and regulatory challenges. Traditional incineration methods are no longer viable due to the Department of Defense (DOD) incineration moratorium and risks of PFAS spread into other environmental media. As government and industry seek sustainable and effective waste treatment solutions, the ability to handle non-aqueous waste streams impacted with PFAS is crucial.

Solution:

Supercritical Water Oxidation (SCWO) is a physical-thermal process powered by water and air that destroys organic compounds. When heated and pressurized above 374 °C and 221 bar, the mixture of supercritical water and air creates a highly effective oxidation reaction that releases large amounts of heat energy and produces safe products that can be recovered and reused.

- SCWO is a suitable treatment technology for LNAPL as demonstrated by the following factors:
  - SCWO is self-sustained by the oxidation of organics (carbon containing compounds) in the waste. Because LNAPLs are petroleum hydrocarbons (e.g., gasoline, diesel, etc.), they are pure fuel for SCWO and will be entirely converted to water (in the effluent) and CO2 (in the gas).
  - SCWO has a demonstrated ability to eliminate >99.9% of PFAS in various matrices with no by-products.
  - SCWO offers an alternative to incineration, which has been banned as a solution and lacks efficiency to completely mineralize PFAS.
- 374Water's AirSCWO offers a unique solution to this problem:
  - Mobility allows it to be used where needed (reducing hauling needs and enabling short-term treatment).
  - Its compact size limits the amount of space and on-site connections required.
  - With a variety of size offerings, including 1 wet ton per day (WTPD) and 6 WTPD, and modularity, the system can scale to suit the needs of the site.

374Water's AirSCWO technology has emerged as a promising solution to address destruction requirements for CECs, like PFAS. Treatability testing was performed using 374Water's bench-scale AirSCWO reactor. The initial analysis of LNAPL characteristics led to the preparation of a 6-liter LNAPL/water emulsion feedstock which was processed through the AirSCWO reactor. Samples were collected and shipped to Pace Analytical for comprehensive analysis of 40 PFAS analytes using U.S. EPA Method 1633.

The AirSCWO process effectively addressed the complexities of LNAPL waste streams, offering a sustainable alternative to traditional methods that often result in secondary pollutants. Unlike incineration, AirSCWO effectively destroys organic wastes thereby converting these waste streams into harmless water and benign minerals, significantly reducing the negative environmental impact of LNAPL waste streams.

Results:

- The AirSCWO treatment demonstrated excellent destruction of PFAS in the LNAPL samples, which were tested for 40 PFAS compounds to determine the initial concentration. The samples contained 2,087 ppt of PFAS, confirming the need to treat the NAPL with SCWO. Prior to treatment, 374Water homogenized the LNAPL with an aqueous carrier phase, producing a SCWO feedstock with a PFAS concentration of 66.8 ppt.
- The SCWO process effectively eliminated PFAS, with all compounds returning non-detect levels via EPA Method 1633 analysis.

These results underscore the robustness of AirSCWO technology in eliminating PFAS and transforming complex waste

streams. Additionally, SCWO excels in its rapid treatment, with the process completing in 25 seconds or less.

Market Opportunity:

The successful treatment of LNAPL impacted with PFAS supports the NESDI Program's mission to "...demonstrate, validate and integrate innovative technologies, processes and materials while filling knowledge gaps to minimize operational environmental risks, constraints and costs while ensuring Navy readiness." The prevalence of Navy Special Fuel Oil (NSFO) and similar chemicals in the environment, coupled with stringent regulatory pressures, underscores the demand for advanced treatment solutions like AirSCWO.

About 374Water

374Water Inc. (NASDAQ: SCWO) is a global cleantech company providing innovative solutions addressing wastewater treatment and waste management issues within the municipal, federal and industrial markets. 374Water's AirSCWO technology is designed to efficiently destroy and mineralize a broad spectrum of organic non-hazardous and hazardous organic wastes producing safe dischargeable water streams, safe mineral effluent, safe vent gas, and recoverable heat energy. 374Water's AirSCWO technology has the potential to assist its customers to meet discharge requirements, reduce or eliminate disposal costs, remove bottlenecks, and reduce litigation and other risks. 374Water continues to be a leader in innovative waste treatment solutions, dedicated to creating a greener future and eradicating harmful pollutants. Learn more by visiting www.374water.com and follow us on LinkedIn.

Cautionary Language on Forward-Looking Statements

Certain statements in this communication are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or our future financial performance, including statements relating to the regulatory environment and our ability to treat various waste streams at scale, and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, levels of activity, performance, or our achievements or those of our industry to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements may be identified by the use of words like "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "project," "consider," "predict," "potential," "feel," or other comparable terminology. The Company has based these forward-looking statements on its current expectations, assumptions, estimates, beliefs, and projections. While the Company believes these expectations, assumptions, estimates, and projections are reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond the Company's control. These and other important factors, including those discussed under "Risk Factors" in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2024, as well as the Company's subsequent filings with the SEC, may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, the Company disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

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