



PyroGenesis Plasma-Based Solution Achieves Successful Destruction of PFAS “Forever Chemicals”

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Success opens door for PyroGenesis' role in global PFAS treatment

MONTREAL, Dec. 03, 2024 (GLOBE NEWSWIRE) -- PyroGenesis Inc. (“PyroGenesis”) (<http://pyrogenesis.com>) (TSX: PYR) (OTCQX: PYRGF) (FRA: 8PY), a high-tech company that designs, develops, manufactures and commercializes advanced plasma processes and sustainable solutions which are geared to reduce greenhouse gases (GHG) and address environmental pollutants, announced the successful completion of a contract for the delivery, commissioning, and operation of its plasma torch system to destroy harmful Perfluoroalkyl and Polyfluoroalkyl Substances (“PFAS”). PFAS are widely known as “forever chemicals” due to a strong molecular bond that resists degradation and have been connected to worldwide health issues. The project is funded by the U.S. Department of Defense, which is seeking various PFAS-remediation technologies as part of its broader environmental clean-up mandate. The name of the client has been kept anonymous for confidentiality and competitive reasons.

Under the previously announced contract, PyroGenesis received \$2.25 million and supplied a 1MW (one megawatt) plasma torch system with related peripherals. PyroGenesis has now completed the commissioning of the system and has been able to operate it at full capacity. To date, more than 300 tonnes of PFAS-contaminated materials have been successfully treated at the client's facility using PyroGenesis' plasma system.

“We are extremely pleased by how our plasma-based system safely treated and destroyed these PFAS. PFAS are insidious, dangerous chemicals that unfortunately are showing up in more and more places, in particular water and soil. We consider PFAS to not only be an environmental concern, but an immediate and serious health concern as well, and we are proud to be able to provide a solution towards their elimination,” said P. Peter Pascali, President and CEO of PyroGenesis. “These successful real-world operational results demonstrate that PyroGenesis' plasma torch systems can now be considered among the long-term PFAS remediation strategies being considered by governments everywhere as they begin to search for ways to deal with this rising health crisis.”

PFAS include more than 14,000 man-made synthetic chemicals that have been widely used in consumer and industrial products found in numerous industries (including aerospace, automotive, and construction), for many decades.¹ Research indicates that exposure to certain PFAS could result in harmful health outcomes, including an increased risk of cancer, increased cholesterol levels, and immune system effects. Products that may contain PFAS include nonstick cookware, stain resistant coatings used on carpets, upholstery, and other fabrics, water resistant clothing, firefighting foam, cleaning products, personal care and cosmetics products and many other products that resist grease, water and oil. As a result of their widespread use and strong chemical bonds and properties, which account for their persistence in the environment, PFAS are proving to be persistent pollutants. They affect humans and wildlife, as they both have been exposed to these chemicals as they consume contaminated water/food, use products made with PFAS, or breathe air contaminated by PFAS.²

The addressable market for PFAS remediation, according to global infrastructure consulting firm AECOM, suggests that the U.S. remediation opportunity is approximately \$200 billion and the global market approximates \$250 billion, with numerous consulting, engineering, and technology solutions required to meet that growing demand.^{3 4}

“The use of PyroGenesis' plasma torches for the treatment of PFAS-contaminated material is yet another example of the many uses for PyroGenesis' plasma technologies that we are developing and bringing to market, in addition to the impact PyroGenesis' plasma systems are already having in process optimization, energy transition and energy security, carbon reduction, and commodity/supply chain security,” continued Mr. Pascali. “As our work continues to yield opportunities where our plasma technology can play a major and even a disruptive role, PyroGenesis' solutions are becoming more readily accepted by heavy industry, manufacturing, and the military. With this successful PFAS treatment contract, PyroGenesis' plasma technology can now also be considered in helping impact global public health on a broad scale.”

“Above and beyond the results announced today, is the impact such successes are having on the overall acceptance of PyroGenesis' offerings,” said David D'Aoust, Senior Sales Manager at PyroGenesis. “As PyroGenesis builds on its success of introducing its low megawatt (less than 1 MW) plasma torches and expertise into mainstream industry, interesting opportunities are developing at higher power levels (greater than 1 MW). This is evident from a recent press release ([PyroGenesis Signs Landmark \\$27 Million 3-Year Contract For Hyper-Powered Plasma Torch](#)) wherein we announced our relationship with a major entity in developing the next-age plasma torch. As we continue to build and accumulate more and more operational hours on our higher-powered plasma torches, we are getting closer and closer to having plasma torches in general, and PyroGenesis' plasma torches specifically, being considered as an off-the-shelf item similar to how fossil fuel burners are considered today. Announcements such as the one today underscore how PyroGenesis is positioning itself to be a player in the growing global opportunity to provide hundreds of millions of megawatts of high-temperature heating to be delivered over the coming years.”⁵

PyroGenesis' involvement in the safe destruction of harmful chemicals such as PFAS is part of its [three-tiered solution ecosystem](#) that aligns with economic drivers that are key to global heavy industry. Plasma torches for use in waste destruction applications are part of PyroGenesis' **Waste Remediation** tier, encompassing the safe destruction of hazardous materials, and the recovery and valorization of underlying substances such as chemicals and minerals. The other tiers are **Energy Transition and Emission Reduction**, and **Commodity Security and Optimization**.

About PyroGenesis Inc.

PyroGenesis, a high-tech company, is a proud leader in the design, development, manufacture and commercialization of advanced plasma processes and sustainable solutions which reduce greenhouse gases (GHG) and are economically attractive alternatives to conventional “dirty” processes. PyroGenesis has created proprietary, patented and advanced plasma technologies that are being vetted and adopted by multiple multibillion dollar industry leaders in four massive markets: iron ore pelletization, aluminum, waste management, and additive manufacturing. With a team of experienced engineers, scientists and technicians working out of its Montreal office, and its 3,800 m² and 2,940 m² manufacturing facilities, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. The operations are

ISO 9001:2015 and AS9100D certified, having been ISO certified since 1997. PyroGenesis' shares are publicly traded on the TSX in Canada (TSX: PYR), the OTCQX in the US (OTCQX: PYRGF), and the Frankfurt Stock Exchange in Germany (FRA: 8PY).

Cautionary and Forward-Looking Statements

This press release contains "forward-looking information" and "forward-looking statements" (collectively, "forward-looking statements") within the meaning of applicable securities laws. In some cases, but not necessarily in all cases, forward-looking statements can be identified by the use of forward-looking terminology such as "plans", "targets", "expects" or "does not expect", "is expected", "an opportunity exists", "is positioned", "estimates", "intends", "assumes", "anticipates" or "does not anticipate" or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might", "will" or "will be taken", "occur" or "be achieved". In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances contain forward-looking statements. Forward-looking statements are not historical facts, nor guarantees or assurances of future performance but instead represent management's current beliefs, expectations, estimates and projections regarding future events and operating performance.

Forward-looking statements are necessarily based on a number of opinions, assumptions and estimates that, while considered reasonable by PyroGenesis as of the date of this release, are subject to inherent uncertainties, risks and changes in circumstances that may differ materially from those contemplated by the forward-looking statements. Important factors that could cause actual results to differ, possibly materially, from those indicated by the forward-looking statements include, but are not limited to, the risk factors identified under "Risk Factors" in PyroGenesis' latest annual information form, and in other periodic filings that it has made and may make in the future with the securities commissions or similar regulatory authorities, all of which are available under PyroGenesis' profile on SEDAR+ at www.sedarplus.ca. These factors are not intended to represent a complete list of the factors that could affect PyroGenesis. However, such risk factors should be considered carefully. There can be no assurance that such estimates and assumptions will prove to be correct. You should not place undue reliance on forward-looking statements, which speak only as of the date of this release. PyroGenesis undertakes no obligation to publicly update or revise any forward-looking statement, except as required by applicable securities laws.

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<http://www.pyrogenesis.com>

¹ <https://www.cspinet.org/article/what-know-about-risks-pfas>

² <https://www.niehs.nih.gov/health/topics/agents/pfc>

³ <https://investors.aecom.com/static-files/2dfcf5c0-ab90-4e1c-a53d-3138f669f54e>

⁴ <https://www.barrons.com/articles/forever-chemicals-pfas-aecom-montrose-republic-services-xylem-stock-0eafef73>

⁵ <https://www.mckinsey.com/capabilities/sustainability/our-insights/net-zero-electrical-heat-a-turning-point-in-feasibility>