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**Newly-released US EPA Findings Support Saratoga Biochar Solutions'
Approach to Destroying PFAS in Biosolids**

EPA Offers Partnership to Test Emissions, Wastewater and Biochar Product

MOREAU, N.Y.—The United States Environmental Protection Agency (EPA) this week released its [updated interim guidance](#) on methods for destroying and disposing of perfluoroalkyl and polyfluoroalkyl substances, commonly known as PFAS. The new guidance reveals that the EPA's own study on treating the trace amounts of PFAS found in biosolids, using similar thermal treatment technologies as Saratoga Biochar, resulted in no PFAS detected in the output biochar product or emissions. The guidance also described biosolids management as a high priority for the EPA, as more than 4.5 million dry tons (approximately 20 million wet tons) of biosolids are disposed of annually in the U.S.

The comprehensive EPA document recommends that decision-makers [prioritize the use of PFAS destruction technologies with the lowest potential for environmental release](#) to better protect people and communities from PFAS exposures. It updates original EPA guidance from 2020 and now specifically lists thermal pyrolysis as an area of interest for conducting additional research at larger-scale facilities.

"This long-awaited update from the EPA further supports what Saratoga Biochar has transparently shared from our own research: first, that high-temperature, slow thermal pyrolysis is effective in separating PFAS compounds from the carbon product. Second, that thermal oxidation is effective in mineralizing PFAS compounds in the gas released from the pyrolysis phase. Third, that a robust air treatment system like the one we have proposed is required to manage the emissions that exit our facility," said Saratoga Biochar Solutions CEO Raymond Apy. "The very fact that the federal government has devoted so much time and energy to studying pyrolysis and thermal oxidation methods shows that current biosolids disposal methods are inadequate and will continue to put human health and environment at risk. Innovative, forward-thinking solutions to the biosolids crisis must not be delayed."

Key findings in the EPA's new guidance include that biosolids incinerators frequently do not operate at the combined temperature and duration necessary to destroy all PFAS compounds in

air emissions. Thus, the Capital Region and its disadvantaged communities would benefit immediately by replacing Albany's two aging biosolids incinerators with Saratoga Biochar's technology.

"Instead of combusting the biosolids like an incinerator, our technology separates the trace amounts of PFAS, microplastics and numerous other volatile organic contaminants typically found in biosolids by gradually heating and agitating the material to 1,100 degrees Fahrenheit (F) in the absence of oxygen," explained Saratoga Biochar Solutions President Bryce Meeker. "The gas generated in the pyrolysis phase, known as pyrogas, is then treated at 2,300 F to destroy PFAS. The time and temperature to which we subject PFAS is significantly higher than the 1,800 F typically reached by biosolids incinerators, and higher than EPA's guidance of 1,100 F. Furthermore, the biofertilizer we recover afterwards represents avoided air emissions that incinerators would otherwise emit. Saratoga Biochar will literally upcycle air emissions into a biofertilizer product that restores soil health and places massive amounts of clean carbon into the ground instead of the earth's atmosphere."

The EPA Office of Research and Development (ORD) also expressed an urgent need for pyrolysis testing under full-scale thermal treatment conditions, which the Saratoga Biochar facility will provide. Saratoga Biochar eagerly anticipates accepting the EPA's offer to conduct air emissions, material, and wastewater testing for PFAS at the company's planned Moreau Industrial Park facility.

"Saratoga Biochar welcomes the opportunity to work with the EPA on extensive PFAS testing, research and development. Moreover, we are committing today that all test results achieved alongside the EPA will be transparently and proudly included in our public record," added Bryce Meeker. "Saratoga Biochar is following the same science as the EPA and reaching the same results, showing that the future of remediating and upcycling biosolids is clean, green and will improve global waste management and agriculture, plus help to mitigate climate change. We look forward to further validating the safety of our cutting-edge technology and our product, and maintaining full transparency with the citizens of Moreau, the EPA and the New York State Department of Environmental Conservation (NYSDEC) throughout the entire process."

Pilot study results released by the EPA helps to validate Saratoga Biochar's process technology design. During the pilot, dried biosolids were fed into a pyrolysis kiln operating at approximately 1,100 F – the same temperature at which Saratoga Biochar intends to operate its pyrolysis process. The input dried biosolids had first been sampled and tested for 41 target PFAS compounds, with 21 trace PFAS compounds detected in the input dried biosolids. However, none of these target PFAS compounds were detected in the resulting output biochar. Further limited analysis of the study's output emissions also indicated zero transmission of those PFAS compounds into the air.

The EPA also noted that emissions "afterburners" operating at temperatures greater than 2,000 F along with gas scrubbing units will potentially further destroy remnant PFAS without significant environmental release. Saratoga Biochar's process design thermally oxidizes pyrolysis gas emissions at 2,300 F, well above the temperatures indicated in the EPA guidance.

Biosolids are currently generated and managed by 16,109 publicly owned treatment works (POTWs) nationwide that are large enough to qualify for federal wastewater discharge (NPDES) permits. The total biosolids generated in these facilities is more than 4.5 million dry tons per year of which 42% is land applied, 39% is disposed of in landfills and 13% is incinerated. None

of these current disposal methods remediate or eliminate the trace amounts of PFAS, microplastics and other volatile organic compounds (VOCs) commonly found in biosolids.

About Saratoga Biochar Solutions: *Saratoga Biochar Solutions provides the most sustainable use of biosolids to benefit human health and the environment. With a proposed biosolids waste management facility to be built in the Moreau Industrial Park, Saratoga Biochar will use groundbreaking thermal pyrolysis technology to manufacture carbon fertilizer from biosolids and wood waste feedstock, solving a major waste management problem for New York and making a greener world for all. Saratoga Biochar Solutions is a project of Northeastern Biochar Solutions, LLC.*

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