

JANICKI BIOENERGY NEWSLETTER

Our engineering team has hit some big milestones these last few months. There are a lot of good things happening here, and we are spreading them around the world! Come and see what is going on...

—The Janicki Bioenergy Team

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Great News on Emissions!



The Results Are In!

Wastewater treatment plants all over the United States are facing challenges with biosolids (sewage and septic sludge) disposal. New federal regulations concerning the combustion of biosolids are forcing almost all wastewater treatment plants to implement cost prohibitive upgrades in order to pass their air emissions testing. Other disposal routes for biosolids such as land application and landfilling are becoming increasingly more regulated, costly, and limited. This leaves many wastewater treatment plants with next to no options for their biosolids.

For those plants that rely on combustion for disposal, mercury has proven to be the most difficult to remove. Regulation 40 CFR 60 Subpart Mmmm for existing plants and 40 CFR 60 Subpart LLLL for new plants have some of the strictest emission limits for mercury of 0.037 milligrams per dry standard cubic meter (corrected to 7% O₂) and 0.0010 milligrams per dry standard cubic meter (corrected to 7% O₂), respectively.

Janicki's unique technology configuration allows the processor to transform wet biosolids, which are typically combusted in traditional wastewater treatment plants, into a much drier and more optimal fuel. The use of a dry fuel in our unit leads to low moisture and low temperature exhaust streams, which facilitate the efficient removal of mercury.

Preliminary results demonstrate that Janicki Bioenergy's S200 processor has successfully passed the strictest regulations for mercury, falling well below the emission limit. In addition, these tests found that the machine passed stringent regulatory limits for particulate matter emissions. These successes mark a huge milestone for the Janicki Omni Processor in proving itself as an environmentally sustainable solution to the sanitation crisis! [BACK TO TOP](#)

COMPONENT	METHOD	UNITS OF MEASUREMENT	EMISSION LIMITS		RESULT
			40 CFR 60, CCCC ENERGY RECOVERY UNIT (BIOMASS)	40 CFR 60, LLLL CO-LOCATED	
MERCURY	Method 29	mg/dscm @ 7% O ₂	0.0022	0.0010	PASS
PARTICULATE MATTER	Method 5	mg/dscm @ 7% O ₂	5.1	9.6	PASS

Pilot JOP Engine Upgrade



Amped Up Electricity Generation

A team of five Janicki Bioenergy engineers and technicians recently spent one month on-site at the Janicki Omni Processor pilot unit in Dakar, Senegal. The trip, spanning from mid-April to mid-May, was primarily focused on implementing upgrades to the steam engine and power management systems, though small general maintenance tasks and personnel training also took place. The engine upgrades will improve durability and component longevity to reduce the frequency of required maintenance. In addition, an enhanced automation system, which handles engine start-up/shut-down, speed control, and power management, was commissioned and tested successfully. In the coming months, all engine operation and power management will occur with the push of a single button.



Technicians Working on New Engine

This accomplishment marks an important step forward for the Dakar Pilot unit as well as the Janicki Omni Processor project overall. As automation and robustness of these machines are continually improved, successful Janicki Omni Processor operation and maintenance become less dependent on the presence of Janicki Bioenergy engineers. This allows organizations like ONAS and DELVIC Sanitation Initiatives, our Senegalese partners handling plant operation in Dakar, to run the machine more independently and effectively.



Senegalese Technicians Unpacking the Engine Components

The Janicki Bioenergy team worked closely with the Senegalese team to accomplish an ambitious scope of work on a tight timeline. Together they were able to successfully install and commission all of the upgrades and software. Just days before the end of the trip, the upgraded steam engine was running in the context of the Janicki Omni Processor plant and producing enough electricity to power the plant itself, the control building, and external loads at the nearby Niayes sewage treatment plant. Having the Senegalese technicians so integrally involved in this effort was not only vital to the successful completion of this trip's goals, but it also served as an opportunity for the Senegalese technicians and Janicki engineers to learn from each other and collaboratively find means of improving the design and operation of this unit and future units to come.



Dakar Pilot Plant at Night

The long term goal of the project is to have these local partners operating Janicki Omni Processors all over the world, with only minimal support required by Janicki Bioenergy. Leveraging the lessons learned from the Dakar Pilot unit is a crucial step towards achieving this goal. ■

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TEAM IN DAKAR

A successful work experience, and good times had by all.



Where Will The Next JOP Go?



We Are Pleased to Announce...

The first S200 model of the Janicki Omni Processor is close to finding a home. Since the release of the widespread GatesNotes.com video in early 2015, international interest in the Janicki Omni Processor has been overwhelming. Janicki Bioenergy has received countless calls and inquiries from virtually every country in the world. After careful consideration, both internally and with the Bill and Melinda Gates Foundation, the S200 is slated to be neighbors with its predecessor.

Though final contracts are still pending, the plan is for the S200 machine to be sent to the Cambérène sewage treatment plant located in same city as the existing pilot project: Dakar, Senegal. The site, which is owned by the public sanitation agency ONAS and operated by the privately held DELVIC Sanitation Initiatives, is one of the largest facilities in Senegal and processes nearly 15% of Dakar's waste streams. The proposal is for the Janicki Omni Processor to be owned and operated by DELVIC to process the solids from the fecal sludge treatment plant. Electricity generated from the S200 unit will then be sold back to ONAS and used to power loads required to operate the fecal sludge treatment plant.

DELVIC Sanitation Initiatives was created in 2014 and currently operates a number of other fecal sludge treatment plants owned by ONAS. Together, ONAS and DELVIC have dramatically improved the profitability and efficiency of these plants. Both organizations believe that the Janicki Omni Processor will further improve these operations and DELVIC expects that it will be the centerpiece in their long-term mission to improve sanitation services throughout Africa. After many discussions and meetings with DELVIC, Janicki Bioenergy is excited to expand upon this collaborative relationship and believes that DELVIC will be another key partner in successfully implementing Janicki's Omni Processor units in places where they are needed most.

Much of the logistical and political groundwork has already been established in Senegal, which is vital to the success of the machine both culturally and technically. Though the

continued vision of the Janicki Omni Processor project is to place machines all around the globe, these established relationships in Senegal made Dakar an optimal choice for installation of this early generation machine. This S200 unit will be the first Janicki Omni Processor to be owned and operated by a private company.



DELVIC Representatives with a JB Engineer, Standing in front of the S200 Unit at Janicki Bioenergy Headquarters

The S200 model produces twice as much electricity as the Dakar Pilot unit, and processes significantly more fecal sludge. Beyond just increases in scale, the S200 unit is a fundamentally improved machine—lessons learned from the Dakar Pilot unit have been incorporated to ensure that the unit going to the Cambérène is a more reliable, durable, and automated machine. A number of DELVIC technicians are currently being trained to operate the Dakar Pilot unit in order to streamline commissioning of the S200 machine. In addition, the team at DELVIC is investigating novel alternative applications of the clean water generated by the Janicki Omni Processor. Shipment to the Cambérène site is tentatively scheduled for early 2017. [BACK TO TOP](#)