San-I-Pak: Helping hospitals be cleaner and greener with smart data management

San-I-Pak - sanipak.com
Industry - Manufacturing – medical devices
Partner - PLC PLUS International

Challenges

- Regulatory agencies require that all equipment for on-site medical waste treatment include detailed reports

- Customers and agencies needed to securely access regulatory reports

- Needed a cost-effective way to troubleshoot equipment issues

Solution

- Developed a data platform built on AVEVA™ System Platform to troubleshoot units remotely and, together with AVEVA™ Reports for Operations, generate, store, and access regulatory reports in the cloud

Results

- Hospitals can easily share cycle reports with regulatory agencies

- Operators connect to units remotely for troubleshooting and solving equipment issues, reducing operational costs

- Hospitals can treat medical waste on site, avoiding the carbon emissions of transporting waste off site for treatment

- Treated waste can be sent to a waste-to-energy plant to be converted into energy or fuel, reducing hospitals' carbon footprint even further

AVEVA

Hospitals generate a significant amount of medical waste—thousands of pounds a day on average, about 15% of which is hazardous and requires special treatment.[1] Historically, hospitals have had to send their waste off site for treatment, costing them $5,000 to $10,000 a day. There's a significant carbon footprint involved in transporting this waste, and sending medical waste off site using outside vendors introduces another step that, when you're dealing with infectious material, poses additional safety risks. Even when it's sent off site, hospitals are responsible for this waste.

San-I-Pak's waste treatment systems give hospitals the ability to treat all their waste on site, which removes the need for outside vendors, saves hospitals money, and helps them greatly reduce their carbon footprint. And now San-I-Pak's new data infrastructure makes it easier for hospitals to securely share necessary information with regulatory agencies while making sure the equipment is treating their medical waste and killing pathogens successfully.

"San-I-Pak Net™ now allows us to troubleshoot, diagnose, and fix any issues remotely. So, instead of having a guy, one of our service techs, fly out to New York, Florida, anywhere in the country—or the world—we can basically fix the issue within minutes."

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Roman Flores
President and CFO, San-I-Pak World Health Systems

San-I-Pak helps hospitals reduce their carbon footprint

San-I-Pak started in 1978 as the first clean and green alternative to incineration. Its systems allow hospitals to treat and dispose of several different waste streams, including sharps, solid waste, recycling, and medical waste. It currently has over 500 installations throughout North America, South America, Central America, Europe, the Middle East, New Zealand, and Asia.

San-I-Pak's systems have enabled countless hospitals to significantly reduce their carbon footprint. One 500-bed hospital in Washington state reduced its carbon footprint by 25 metric tons per year, while a hospital in Southern California reduced its carbon footprint by 360.1 metric tons per year. Isaac Garcia, Director of Patient Services at Boston Children's Hospital, says, "Aside from tremendous cost savings, year over year having a reliable and safe system that is environmentally responsible helps us contribute to the reduction of traffic congestion, and reduction of carbon emissions by eliminating over 100 pick-up trucks a year from all of our locations."

But the disposal of medical waste has strict compliance regulations that hospitals must follow. It's extremely important for the necessary detailed equipment reports to be securely and easily accessed. Before the creation of San-I-Pak's data platform, customers and regulatory agencies had to wrangle with security and access challenges, and the San-I-Pak team couldn't easily access equipment to troubleshoot issues. San-I-Pak had a vision of creating a system that didn't have to involve the hospital's network and allowed regulatory agencies to access cycle records, while simultaneously being able to remotely access equipment for troubleshooting.

"AVEVA System Platform is the ideal solution for this. Since it's object-oriented—and one of the only SCADA systems out there that is truly object-oriented—we can model all the pieces of their equipment."

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Michael Hilligas
Lead Senior Systems Analyst, PLC PLUS International

Hospitals must follow strict guidelines when treating medical waste, and regulatory agencies need to see the records that show they have followed these guidelines.

A data solution for regulation compliance and remote maintenance

In 2018, Michael Hilligas, Lead Senior Systems Analyst at PLC PLUS International, built a system for San-I-Pak using AVEVA System Platform they called San-I-Pak Net™. The new system uses Azure, which allows the cellular network to live directly on the network using the latest cybersecurity, a zero-trust network architecture, so that only authorized users are able to access it. The system gathers data every 10 seconds. Every day at midnight, the data gets pulled in from the hospitals and processed, then pushed to the historian, where customers can log in with their credentials and obtain the generated reports using AVEVA Reports for Operations.

Customers can now access the data from any internet-enabled device. This allows hospitals to give access to regulatory agencies to download the cycle records data themselves, which provides a layer of transparency, as regulators can come in and grab records whenever they want. Some regulatory agencies have begun to ask for minute-by-minute cycle data, which the team has successfully created.

San-I-Pak Net also allows San-I-Pak to diagnose and solve equipment issues remotely. They no longer need to send a service technician to diagnose and troubleshoot the problem. This means a significant decrease in operational costs for San-I-Pak, and problems are solved much faster. Some hospitals can spend up to $10,000 a day shipping their medical waste off site, so getting equipment back up and running within minutes is critical. San-I-Pak handles about five hundred systems.

They get between 15-20 calls about equipment a day. Now they can fix issues remotely in a matter of minutes, rather than flying a service tech out for thousands of dollars—they're saving that money, and reducing their own carbon footprint.

And the object-oriented capabilities of AVEVA System Platform make it very easy for San-I-Pak to generate new sites. It takes less than two hours to pick a proper naming convention, assign IO and an IP address, and then it's hooked up to the system—no new coding or new infrastructure necessary.

San-I-Pak Net's customer portal is going live soon, which will include all the information hospitals need in one stop: cycle records information, accounting information, service maintenance records, validation testing records (to make sure equipment is functioning the way it should), and all project-related information. This customer portal will give hospitals even more control over the treatment of their medical waste, making it easier to focus on the business of saving lives.

San-I-Pak Net allows San-I-Pak to diagnose and solve equipment issues remotely, no longer needing to send a service technician.

Watch the presentation

Citation:

Flores, Roman and Michael Hilligas. "San-I-Pak World Health Systems: Regulatory data collection." resources.osisoft.com/presentations/san-i-pak-world-health-systems--regulatory-data-collection

[1]Janik-Karpinska, E., Brancaleoni, R., Niemcewicz, M., Wojtas, W., Foco, M., Podogrocki, M., & Bijak, M. (2023, January 13). Healthcare waste-a serious problem for Global Health. National Library of Medicine. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9858835