iGrafx®

Case Study

How NucFil, LLC accelerated decision-making and reduced throughput time with Process360 Live

About NucFil, LLC

In the niche and highly regulated world of nuclear waste management, NucFil, LLC. has been an innovative player for decades. Founded in 1986 by Gil Brassell, who patented a groundbreaking filter for safely venting pressurized nuclear waste containers, the company has grown into an award-winning manufacturer of equipment specialized in the handling and disposal of radioactive waste, with a focus on two main products:

1. **Drum Vent Filters:** attached to radioactive waste containers, allowing only hydrogen to escape, while hazardous materials remain inside as they decay.
2. **Nuclear Material Containers:** up to 10 gallons in size with a locking collar to ensure a perfect seal and fitted with a vent filter to ensure the safe release of hydrogen.

In recent years, the company has undergone a number of changes, going from a private family-run business, to being bought by a private equity firm Benford Capital in 2019, before being acquired by Florida-based holding company, Cadre Holdings, in 2024.

The Challenge

A significant portion of their business comes from government laboratory contracts, both in the US and the UK. One challenge these contracts pose is that many government agencies use a ‘milestone’ billing process that requires ordering all materials for a project in one batch.

This would leave materials sitting in inventory for long periods of time as they were gradually used over the course of a project lifecycle. When Dave Sauder joined NucFil, LLC in December 2022 as Quality Director, he knew that processes could be improved.

“My old boss used to say the way he measured it was to walk around the factory floor with a white glove; if he wiped his finger on something and it had dust on, it meant it was sitting there way too long,” Sauder recalls.

NucFil’s workflows were quite old-fashioned, lacking advanced manufacturing and planning systems for the factory, and they had been using very basic flowcharting tools to map their processes, such as Visio, Draw.io and even Microsoft Word.

The Solution

Sauder, a seasoned operations and quality professional and Six Sigma Black Belt, had a prior history of using iGrafx at previous companies and as a consultant to successfully implement lean manufacturing practices. So, when the time came to carry out some much-needed process improvements, iGrafx was a “no brainer”.

“I was biased towards iGrafx because of my familiarity with it, but I also researched some alternatives, and the cost was just astronomical for some of these other systems,” says Sauder. “And iGrafx is phenomenal at getting you to understand your own processes.”

By using Process360 Live’s process mining, task mining, process modeling and simulation, monitoring and predictive analytics functions, Sauder began to bring some order to a factor floor that was often beset by inventory backlogs and process queues.

He immediately started working with a colleague in charge of one of their major product lines, using process mining and task mining to lay out the process flow, feed in information about set up times, run times, and yields. Some processes ran at different speeds to others; some processes required different staffing configurations to others.

By joining the existing process together, Process360 Live could then reveal the inventory queue up and bottlenecks between stages. To skeptical colleagues, Sauder could simply walk them out onto the shop floor and confirm that, indeed, there were the carts full of inventory materials.

“W. Edward Deming had a famous saying: 'A system must have an aim. Without an aim, there is no system’. Typically, when people are in a hurry, it’s ‘ready, fire, aim’. That’s the mantra of a lot of folks that just want something done. What you really want is ‘ready, aim, fire’, which you can only do when you understand your processes, and can experiment, backed up by statistics. iGrafx is an ideal solution for understanding your processes.” - Dave Sauder

This “proof” built confidence in iGrafx’s capabilities, and allowed Sauder to begin to shift strategy from a “push” manufacturing approach to a “pull” manufacturing approach. For there he was able to clearly model ideal “to-be” processes, experiment with those models, run simulations and further refine them.

While the primary use case has been process optimization, Process360 Live also provided a layer of risk analysis. Models could highlight weak spots in the production process, such as a reliance on a single piece of equipment or the possible absence of key personnel. These insights enabled the team to proactively address potential risks and minimize disruptions to production.

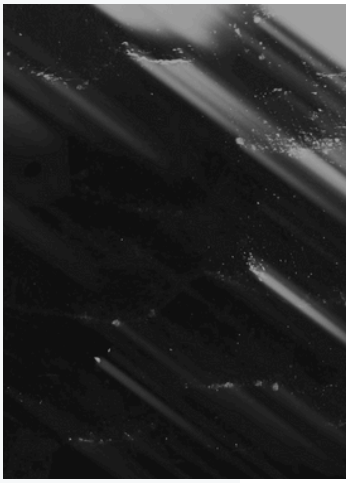
“The power of [Process360 Live] when you need to change things around - sometimes significantly – is that you can run a scenario, see what the numbers look like, see the benefits, and talk about them before actually making the changes. Some processes operate at one speed, and others operate at a different speed, and you have to synchronize them. When you try and explain that, unless you have something visual that actually looks like a process model, they are a little more skeptical.”

Key Benefits

One of the most significant benefits of Process360 Live was how it accelerated decision-making. Instead of relying on brainstorming sessions or subjective opinions, the team could model proposed changes and instantly see the potential impacts on throughput, efficiency, and resource allocation.

This capability proved invaluable for gaining buy-in for proposed changes from factory floor employees and management alike. Seeing the process flow visually and watching simulations run in real-time helped people who were unfamiliar with the underlying concepts to grasp the benefits of lean manufacturing. It transformed discussions from theoretical arguments into objective, data-backed conversations, making it much easier to reach a consensus.

Results



The outcome of the insights, modeling and simulation capabilities of Process360 Live has been a 60% reduction in throughput time on the factory floor. When faced with the imposed “batch” purchase of materials for government projects, NucFil often had an overabundance of inventory on site, which caused unnecessary complications and bottlenecks.

Process360 Live’s mining, modeling and simulation capabilities allowed Sauder to discover how NucFil’s processes were currently running, design ideal future processes, convince his team that they would work, and optimize on an iterative basis to bring order onto the factory floor.

Though they have not yet had the same opportunity to implement similar changes on the filter side of the business due to the focus on the canister production, Dave Sauder noted that iGrafx could also be used to “load level” production for the filters. By analyzing the ordering patterns of different customers, the team could create a more consistent and even workflow throughout the year, further enhancing efficiency. This shows the scalability and versatility of the solution for a company with diverse product lines and customer demands.

Future plans for Process360 Live at NucFil, LLC

Along with three other companies, NucFil, LLC forms part of a nuclear safety collective group. Sauder believes that the other members of that group could also take advantage of iGrafx, especially those that deal with manufacturing and production.

With a new incoming president, who has a strong manufacturing background, Sauder believes it will be another no-brainer to expand usage of iGrafx to those entities:

“We can get it pushed over to some of the other companies that can take advantage of it,” says Sauder. “We have a group at our corporate office that's focused around process improvement, who we can work with to leverage their ability to help some of the smaller entities to lean out their processes or their manufacturing.”

The streamlining success with iGrafx also gives NucFil, LLC another card up their sleeve: they can now attempt to convince those government contractors, who insist on batch purchases in their projects, to move towards a more lean manufacturing approach too.