

Automation technology helps to improve waste processing and to protect the environment

New Smart plant operated by Valtalia quadruples recycled material capacity



FactoryTalk View Enterprise SCADA operator station

Walking through history

Travelling the last stretch of the Camino de Santiago (Way of St James), from Sarria to Santiago de Compostela, finds you in the rural heart of Galicia (Spain). The route, which is about one hundred kilometers long, is known as the French Way, and is traversed by more than 300,000 pilgrims every year.

They enjoy nature while walking through oak forests and pastures where rubia gallega and friesian cows graze peacefully. What a great place to breath pure air! Inhabited in the past by Celtic tribes, in the Middle Ages the region became a place of cultural exchange between the Iberian Peninsula and the rest of Europe.

Further north from this pilgrimage route, surrounded by nature, lies the town of Cerceda, where Valtalia looks after the environment in the region by means of urban waste management and processing, for both yellow and black organic sacks. The facility recycles 500,000 to 550,000 tons of waste per year from more than 2.2 million inhabitants in the region, but first and foremost, it enables Galicia to be a reference worldwide on environmental protection.

For this purpose, in Cerceda, Valtalia operates a group of waste processing plants. However, these premises are too small for the new strategy scheduled by the managers.

Challenge

Automate the new material recovery plant

Solutions

- FactoryTalk View SCADA System
- GuardLogix 5580 L83 PLC
- PowerFlex 525 AC Drives
- Stratix 5700 and Stratix 5100 Switches
- Studio 5000 Software
- POINT I/O Safety Modules

Results

Less costly maintenance

- Lower maintenance costs due to electrical cabling reduction and local command panels removal.

Higher efficiency and safety

- Improved efficiency and reduced response time of production and maintenance team, thanks to the flexibility, mobility, and technical information and documentation available in situ.
- Massive data recording for production, energy, and quality efficiency applications.
- Chance of adding Industry 4.0 applications such as augmented reality or Internet of Things.
- Optimization of reliability in the facility with PLC-programmed safety.

Proven results

- Doubled the tons of recycled waste and quadrupled the amount of material transferred to other recycling facilities.

Environmental protection

That's the key point: to enable most of the waste in Galicia to be recycled for other usages, thus preserving the environment in the region and protecting landscapes like those seen by the pilgrims along the Camino de Santiago. However, this required the Cerceda premises to be expanded. In order to meet these goals, the owner organization management decided to put into operation a new 15,000 m² plant in Cerceda to recover materials contained in black sacks.

A public tender was announced for the construction and operation, and the Galician company Valtalia won it, for a period of fifteen years. Valtalia received clear indications about the task at hand, including full automation of the entire process. For the implementation, the company had the support of Asinova, a Galician company that specializes in programming and industrial automation.

"The goal was to put into operation a facility fitted with more than 500 control units, overseeing conveyors, trommels, crushing and sorting machinery, and more than 150 variable-frequency drives, controlled by industrial communications," says Jorge Guinarte, CEO at Asinova.

A customized plant

This was a huge challenge, so it was divided into several steps. First, the hardware, software and communications requirements were analyzed; then, IT systems were configured and implemented, followed by PLC and SCADA programming. Following this, Rockwell Automation was chosen as the primary automation provider.

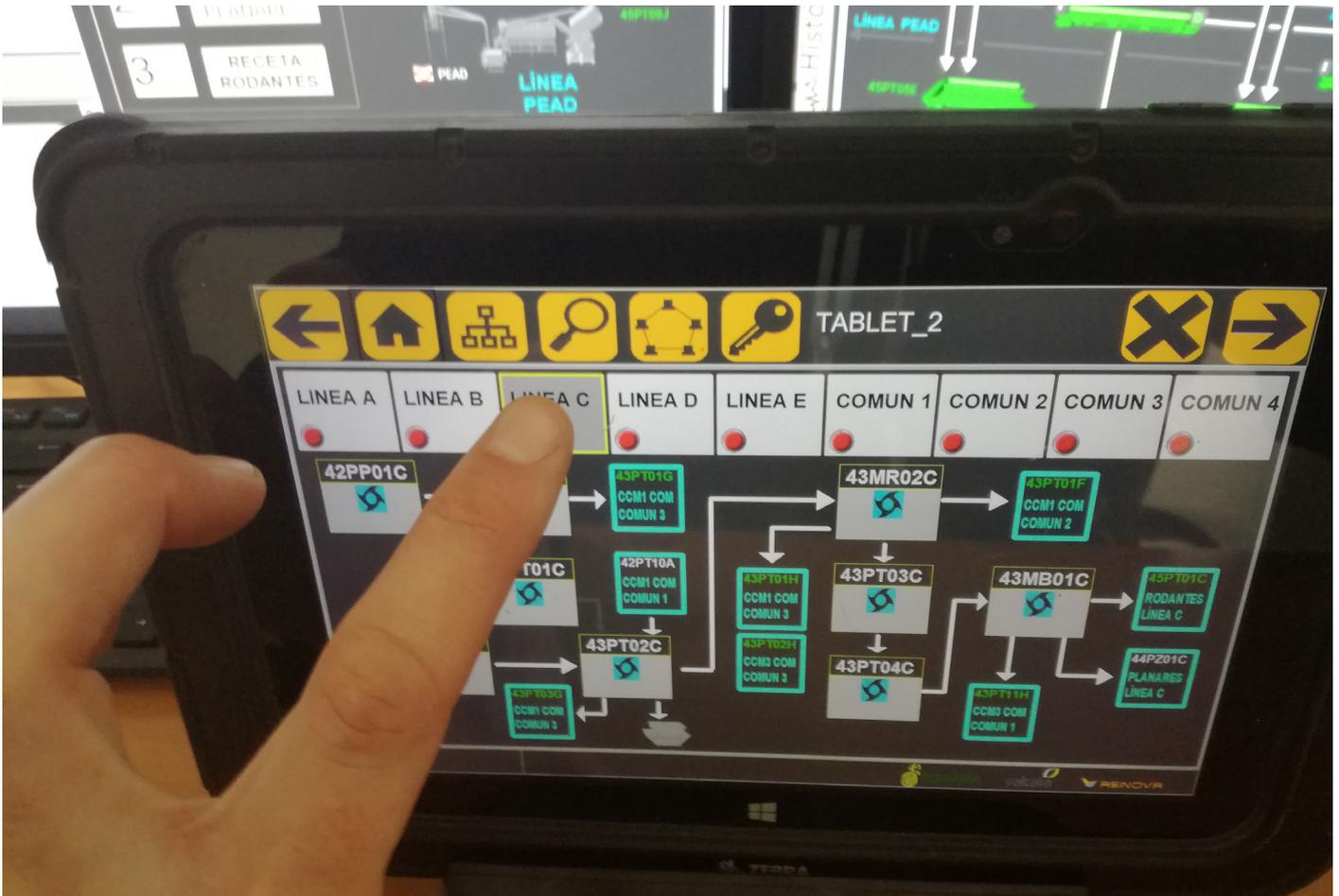
Rockwell Automation provided the SCADA system, integrated safety programmable automation controllers (PAC), variable-frequency drives, as well as Ethernet and fiber optic-based industrial communications. "All plants we were operating were more than fifteen years old, so they required a lot of space in the control room, as well as a large cabling network," comments Martín Nogueira of Valtalia. "This project has enabled us to notice that Rockwell Automation Connected Enterprise technologies permit the equipment to be downsized and work wirelessly, while delivering better management of plant operations."

As Nogueira says, since the whole system is wireless and tablets are used to manage the systems, this has been life-changing for the operators, who oversee and control machinery operations. "Now they can check the machine condition without approaching them for visual inspection. In case the system detects any errors, you can react more quickly and effectively to find problems or to prevent them before they happen," says Nogueira. "The ability to monitor the whole plant in real time makes it possible to react immediately in case of any event, maximizing the performance and efficiency of the facility." Furthermore with the network/wireless changes, safety assessments and risk mitigation were made in order to secure all the communications.

What about the future? The plan is for the plant to expand depending on future needs. According to Guinarte: "All these systems have been designed and scaled to cater for and deliver safety, reliability, capacity, and the availability required for 365/24 ongoing operation. The



Each line in the new plant can select and pack more than 750,000 tons of recycled waste per year.



One of the POINT I/O communication and periphery control panels.

scalable configuration gives us the ability to address any future growth in demand.”

Duplicate the amount of recycled material

In view of the above, each line in this new recycling plant can select and pack 40 tons of waste per hour, and up to 120 tons if necessary. This equates to a capacity of 750,000 to one million tons per year, almost doubling its capacity.

In case the system detects any errors, you can react more quickly and effectively to find problems or to prevent them before they happen

The recycling process has been optimized too, so the new plant has enabled to quadruple the amount of waste recycled in the facilities, thereby minimizing landfill. In fact, projections state that in 2020 only a 10% of waste will be sent to landfill. This refers to waste that can neither be recycled nor valorized, thereby achieving technical zero spills, one of the main goals of the EU Council regarding waste treatment for 2035 and accomplished by SOGAMA fifteen years early.

Therefore, next year, on occasion of the Jacobean Year, the thousands of pilgrims willing to cover the Camino de Santiago to enter the cathedral by the Puerta Santa – which opens exclusively for this celebration – will enjoy it far more thanks to Valtalia, helping to look after the unique natural landscape.

Additional Information

www.rockwellautomation.com

The results mentioned above are specific to Valtalia and Asinova’s use of Rockwell Automation products and services in conjunction with other products. Specific results may vary for other customers.

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Publication WASTE-AP003A-EN-P - February 2020

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