D/3® DCS
Powering World Class Organizations

Benefits Realized

- Modern safety systems implemented
- Easy-to-upgrade/maintain control system
- Reliable local engineering support
- Improved environmental impact
- More power-per-operator
- Expanded plant profitability
- Simple and intuitive training

"We can say that [this is] more than a business relationship, we have created a good friendship and we know we can count on [NovaTech] to help us when we need it. We are very satisfied and confident that now we will have a solid system for many years to come."

Carlos Ochoa
Lead Process Control Engineer
Duke Energy

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International Control System Migration

The rebirth of a power plant breathes new life into Guatemalan community.

OVERVIEW

In recent years, shifting demand and instability in global energy markets have persuaded power generators to search for practical, cost-effective solutions for their power plant operations worldwide. With the prices of diesel fuel skyrocketing around the globe, Duke Energy was looking for a more stable method for energy production, including cleaner burning coal options. NovaTech was called upon to develop and deliver a state-of-the-art process control system containing the latest safety and environmental monitoring features for a 80MW coal-fired power plant in Esquintla, Guatemala.

BUSINESS CHALLENGE

- Ensure the safety of the plant, its systems, and its personnel.
- Simplify maintenance for continued local engineering support.
- Craft a comprehensive, cost-effective plan for re-engineering the existing plant design to fit current project demands.
- Create new and modern visualization techniques to allow an optimal number of operators to run the plant efficiently.
- Develop an intuitive training system that allows new operators to easily adapt to the new system.

NOVATECH SOLUTION

The project began well before the first piece of hardware reached Guatemala. Beginning with the development of a standalone simulation system, NovaTech developed operations and training procedures on how to use and navigate the D/3® System and how to properly operate a coal-fired power plant. This approach provided an opportunity for engineers to create over 200 custom process graphics, update application software, and conduct a Factory Acceptance Test (FAT)—all in NovaTech's Shelby, North Carolina office. Simultaneously, new operators were able to access the system and begin their training before plant operations began.

Construction begins in Esquintla, Guatemala

Plant equipment arrives from North Carolina, USA

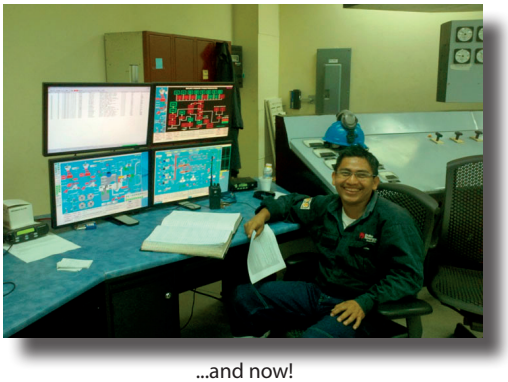
NovaTech®
Bitronics ◆ D/3 ◆ Orion

With the simulation system in place, the entire production system was staged and tested. In order to complete this crucial stage of the process, NovaTech assembled every computer, network switch, PLC, and remote I/O cabinet involved with running the plant, making fiber connections to ensure proper communications to each piece of equipment. After the final FAT was conducted and approved, the equipment was shipped to Guatemala for installation and commissioning.

Then....

Once NovaTech engineers arrived in Guatemala to begin commissioning the Palmas II plant, the first step was to ensure all D/3® System components were installed and operating properly. Five redundant process controllers were brought online and connected to the physical plant equipment. The process of communicating and testing networks for all the subsystems utilizing Rockwell Automation MicroLogix PLCs came next. These subsystems included the coal handling, fly ash handling, wet ash handling, pyrite removal, water demineralization, side stream filtering, condensation handling, air drying, and all four baghouse emissions control processes.

Next, the NovaTech team began the process of comprehensive loop checks, troubleshooting, and testing for all field equipment and instrumentation. Subsequently, the plant was started up in phases. The first phase used high pressure steam to clear each boiler of debris; ensuring clean steam was used in the turbines. The heavy fuel oil (HFO) system was then utilized to ignite each of the four burners associated with each boiler, and once the pulverized coal system had started, each boiler began burning coal.



...and now!

Through the duration of the project, NovaTech provided around-the-clock, on-site support until the turbines were started up and the newly minted power plant became fully operational.

NovaTech-sponsored dental care clinic

GIVING BACK/COMMUNITY INVOLVEMENT

The Guatemala project, while challenging in its scope and unique resource requirements, offered an opportunity for NovaTech to give back to the local community. Continuing a commitment to global service with a local touch, NovaTech partnered with area groups to provide complimentary dental services to residents of the greater Esquintla area. Over 400 people received care from a dentist, while another 200 were treated by a team of physicians who volunteered their time.

Faced with blistering heat, a threatening hurricane, and a looming volcano eruption, the locals never wavered in their gracious hospitality and warm acceptance of NovaTech personnel through the duration of the project. Ultimately the project yielded employment for dozens of people and provided energy for over 150,000 homes in the area of Esquintla, Guatemala.

For more information on how NovaTech helps the top energy producers improve profitability,

visit us online at www.novatechweb.com or call 800.253.3842