

AIR EMISSIONS CONTROL TECHNOLOGIES MEET HIGH STANDARDS SET BY CORRIGAN OSB

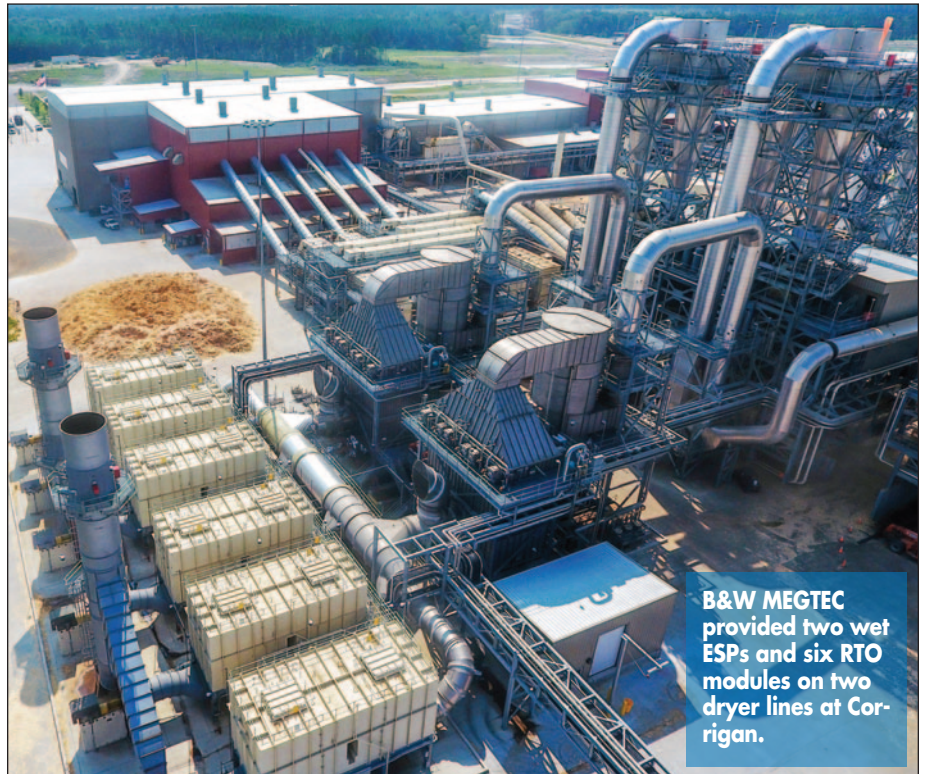
A hallmark of the U.S. wood products industry is its longstanding commitment to environmental stewardship, encompassing both ends of the material supply line—from the forest to finished goods. This obligation is fulfilled by using raw materials from responsibly managed forests and manufacturing operations that deploy gas cleaning and air pollution abatement systems, as well as low-volatility resins.

RoyOMartin (ROM) is a highly recognized leading producer of wood products—all of which are Forest Stewardship Council (FSC) certified (FSC C022036), which assures builders and consumers the raw materials have come from responsibly managed forests that provide environmental, social and economic benefits.

But what about the manufacturing side? To this end, ROM is equally committed to responsibly manufacturing its finished products. A solid example of that commitment is its new OSB plant in Corrigan, Texas.

Construction of the state-of-the-art facility began in the summer of 2015. Corrigan OSB LLC complements the ROM manufacturing plants in Oakdale, La. (OSB), and Chopin, La. (plywood). It was the environmental performance at Oakdale that helped set the platform for the Corrigan OSB greenfield site.

The dryer air abatement system at the



Corrigan plant was engineered and manufactured by Babcock & Wilcox MEGTEC, De Pere, Wis. The system features two key components—the SonicKleen wet electrostatic precipitator (WESP) and the CleanSwitch regenerative thermal oxidizer (RTO). The press abatement system also consists of a CleanSwitch RTO system.

The dryer abatement system controls the off gases from two dryer lines. Two WESPs and six RTO modules are configured to provide 100% dryer uptime in the event one of the RTO modules is taken off-line. The configuration allows the plant to realize a significant reduction in natural gas and electrical consumption.

The SonicKleen WESP system is positioned upstream from the RTO. It reduces particulate matter, submicron salts, and condensed VOC emissions from the exhaust of the rotary wood dryer. A critical component of the WESP is a TurboVenturi scrubber, which evaporatively cools and saturates the process air to adiabatic saturation and scrubs the larger front-half particulate matter. To help protect the WESP and RTO, the venturi also includes a reservoir for chip/strand carryover that can occur due to bridging in the primary product recovery cyclones.

Critical to the full process is the patented de-watering capability of the SonicKleen WESP hood mist eliminator, which ensures virtually no liquid droplet carryover while requiring no routine maintenance. This is a key advantage, especially considering increasingly stringent environmental requirements, providing a level of performance that matters even where a small amount of liquid carryover can adversely affect emissions test results or downstream equipment. In the Corrigan dryer application, this minimizes contamination of the downstream MEGTEC CleanSwitch RTO heat-exchange media. In the Oakdale OSB installation this has resulted in a nearly 10-year RTO media life.

The CleanSwitch RTO system destroys volatile organic compounds (VOCs), hazardous air pollutants (HAPs) and provides odor control. It combines high-temperature thermal oxidation with a proprietary regenerative ceramic heat exchanger to efficiently convert VOCs and other odor-causing organic compounds to carbon dioxide and water vapor.

Each CleanSwitch module consists of two energy-recovery columns connected by a high-temperature combustion chamber. The unit is internally



Another view of the environmental control technologies for treating off-gasses, VOCs and pollutants.

lined with ceramic fiber insulation for energy efficiency. Air flow is directed through the unit by a patented single switch valve, designed so one column is in a gas-heating (inlet) mode and the other column is in a gas-cooling (outlet) mode. This unique switch valve system ensures no bypass or leakage of VOC-laden gas into the clean exhaust gas.

The CleanSwitch takes its name from the B&W MEGTEC patented switch valve that keeps cleaned air totally separate from dirty process exhaust. The valve utilizes a double-air seal and is the only moving part in the unit. The simple and accessible oscillating design promotes uniform air distribution and results in a maintenance-friendly system.

MILL LAYOUT

“The preliminary layout of the Corrigan site was done by RoyOMartin staff based on improvements to the Oakdale site after about nine years of operation,” comments Ed Spink, VP of technology and business development, B&W MEGTEC. “Oakdale is able to consistently produce at over-design capacity. RoyOMartin’s strategy is to constantly improve process operations and not ac-

cept the status quo.”

When B&W MEGTEC was engaged to assess the current operation, and offer ideas to further improve the layout and process efficiencies at Corrigan, system engineers needed to respond to the comment by Jonathan Martin, Martin Companies LLC chairman, that “the largest cost of operation is downtime.” With that, B&W MEGTEC engineers suggested that redundancies be built into the system.

Spink recalls that Martin mentioned the fact that the Oakdale WESP had never caused a shutdown, so the focus went to the RTO and identifying ways of ensuring it too would not be a bottleneck to the dryer operation.

“The result was complete system redundancy, which allows the plant to reduce energy consumption while providing 100% dryer capacity if an RTO module is taken off-line,” says Rodney Schwartz, Global VP of Sales, B&W MEGTEC. “In addition, man-safe dampers on the inlet and outlet of the RTO module ensure safe access for maintenance, while the balance of the system remains on-line. The customized design of the entire system was developed to fulfill the client requirement for no downtime.

“It was clear from the outset this was

going to be a high-profile project for RoyOMartin because of their leadership in the industry,” Schwartz adds. “Their benchmark is being good stewards of our forests, all while safely delivering a full line of wood products across the country and world.”

CONTINUOUS PROCESS

ROM’s pledge to continuous process improvement touches everything daily. It applies internally for all employees and operations, from production to safety. ROM also requires the same level of commitment from its suppliers. It was from this approach the company launched its due diligence to understand the design of the CleanSwitch RTO and how B&W MEGTEC delivers on safety.

According to Spink, from the beginning ROM said “they were perfectly happy with what they were running, so we had to convince them we had a better mousetrap. At the risk of sounding cliché, that was the phrase I used when we first talked about the CleanSwitch RTO and its patented switch valve.”

“Fortunately, we had numerous CleanSwitch units under construction at various stages of completion,” Schwartz adds. “They were relatively close by, which made it easy for RoyOMartin officials to gain a good understanding of the advances and benefits of the CleanSwitch design.”

As it turned out, the CleanSwitch RTO is the only “new” equipment to go into the Corrigan mill—that is, equipment from a new supplier that was not operating at the ROM site in Oakdale.

“RoyOMartin’s approach to continuous process improvement is very much like that at B&W MEGTEC,” Schwartz says. “The culture starts at the top and branches out to touch every employee. It’s truly an ownership philosophy that fosters an ongoing commitment to be the best every day.

“We welcomed the opportunity to share details about how we leverage continuous process improvement throughout B&W MEGTEC’s business. And like RoyOMartin, how safety is paramount from manufacturing to being directly reflected in the engineering design features of both the RTO and WESP.” **PW**

B&W MEGTEC supplied this article and photos exclusively for Panel World.