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A SUPERIOR SLUDGE DEWATERING SOLUTION:

OR-TEC'S 2.2 METER WIDE GEMINI BELT PRESS DELIVERS HIGH DRY SOLIDS THROUGHPUT AND AN EXCELLENT DRIER FINAL CAKE RESULT FOR HISTORIC CITY OF NITRO, WEST VIRGINIA.

NITRO, WV:

Located between two of the Mountain State's largest cities of Huntington and Charleston, Nitro was originally born as a "Boom Town" during America's mobilization for World War I for production of gun powder. Nitro WWTP is nestled near a coal burning power plant and services approximately 4,500 customers within the regions' 7,178 population.



OR-TEC / NITRO SOLUTION:



Having researched Belt Press system options by visiting a number of different installations over nearly three years, Danny Lewis, Nitro's WWTP Plant Superintendent, discovered a unique Belt Press system in operation at a wastewater treatment plant in Williamstown, WV. That plant's superintendent, Bob Stirling, noted that it was a Gemini Belt Press from **OR-TEC, INC.** a leading integrated manufacturer of advanced wastewater treatment equipment for the municipal and industrial marketplace.

OR-TEC / GEMINI BELT PRESS SYSTEM SPECS:

At 2.2 meters wide, the Gemini Series Belt Press is ideal for medium to large size WWTP's. The double belt system is constructed of stainless steel vs. galvanized or painted steel due to it being a far better material in wet/corrosive environments. The press combines a gravity drainage zone, a squeezing zone, and high pressure shear zone to provide a large dry solids throughput of up to 1,500 lbs. per hour, low polymer usage, high solids capture rate, and an excellent final cake.

The unit has a large flocculation tank with a variable speed mixer which allows the sludge and polymer solution to be thoroughly mixed. This flocculation process is critical to the dewatering process as it helps separate the water and the sludge. The variable speed mixer allows operators to easily change the mixing energy which helps ensure the best possible flocculation and dewatering.





Following the flocculation tank, the sludge enters a large gravity zone where plows and dewatering rollers begin the process of thickening the sludge. From here, the thickened sludge enters a low pressure zone which features a large perforated stainless steel roller followed by an increasing pressure wedge zone. The final dewatering zone is a high pressure area where multiple rollers of decreasing diameter continue to squeeze and dewater the sludge.

A single control panel is used for all this equipment, and the Belt Press system also features electric actuation—so no hydraulics or pneumatics are needed. These electrically actuated belt tracking and tensioning systems are controlled by the onboard programmable logic controllers (PLC's) in the Belt Press panel. Ultimately, this means there's no need to have a separate pneumatic or hydraulic system to operate and maintain tracking and tensioning of the belts. Other OR-TEC supplied equipment included;

Polymer dosing feed system: A proprietary OR-TEC component, a mixing system ahead of the belt press activates the polymer.

Wash water pump: High pressure pump used to feed the systems spray bars and polymer dosing system.

Screw auger system: Used to transport the dewatered sludge when it is discharged from the belt press to the dump truck.

Sludge cake monitoring system: A unique OR-TEC add-on feature which constantly monitors and detects the sludge being discharged from the Belt Press. If no sludge is detected for one minute, the entire system shuts down and an alarm is activated.



OR-TEC / ONE-SOURCE OPTIMIZATION:

Notably, Nitro's engineering specification originally called for a minimum of 16% final dry cake—the percent solids in the sludge following dewatering. OR-TEC's Gemini Belt Press system is exceeding the required production rate requirements and is currently achieving a 20% plus final dry cake.

Delivered in September 2016, Nitro's new Belt Press system is operating at advanced capacity and performance. According to Nitro's superintendent Danny Lewis, "The system handles a lot of throughput, so there is substantially less for operators to deal with on a daily basis. There's no oil, filters, or air supply needed so it's more user friendly, easier to operate, and maintain. If there is any maintenance or service issue, OR-TEC comes in to work out the bugs immediately."

All OR-TEC Belt Press and associated wastewater products are designed, engineered, manufactured, and assembled in the USA.

For more detailed information call 216-475-5225 or email info@or-tec.com

