The treated sludge containing water and metal particulate waste is pumped into the chambers until they become full with solid “sludge cakes” formed from the concentrated waste. During the process, water in the sludge is separated from the waste materials as it is filtered through the filter press membranes. Upon exiting the membranes, the now-clean water is disposed of in the municipal sewer system while “sludge cakes” drop into a bin to be carried away for disposal.

Overall, the facility’s filter presses process up to 9,600 gallons (36,340 liters) of waste sludge per day and produce more than 100 tons of “sludge cakes” per year.

Optimizing Process Improvement
While AMTROL’s 30-year-old Wilden M8 AODD pumps had been faithful workhorses over the years, their older technology was a limiting factor in utilizing the new filter press’ full potential.

A crucial part of an AODD pump is the ADS. This component directs pressurized air to the diaphragms that convert it into mechanical motion that push and retract the pump’s diaphragms, causing it to pump fluid. AMTROL was using 30-year-old Wilden M8 AODD pumps equipped with ADS technology also dating back more than three decades. The poor reliability of these older pumps and ADS units under
the demanding conditions of the filter presses resulted in periodic waste processing halts and downtime for pump disassembly, repair, reassembly and restarting. While the Wilden AODD pumps were the best technology for the filter press, a newer solution for ADS reliability was needed.

AMTROL didn’t need to look far for a solution. By replacing the 30-year-old ADS technology with the revolutionary new patent-pending Wilden Pro-Flo SHIFT ADS, they were able to reduce the downtime of their AODD pumps, streamline the waste-management process, conserve energy, save money and reduce the total cost of ownership, all at the same time.

“Pump stalling was a problem,” said AMTROL Environmental and Production Manager Bob Perrotti. “Because the new filter presses were automated, they operated mostly unattended. As a result, if a pump stalled, it may not be discovered for a long period of time during which no waste was processed. While our existing Wilden pumps had provided us with great performance throughout the plant over the past 30 years, their older ADS technology was clearly the weak link in the new filter press process.”

Perrotti discussed this issue with Dave Buckless, Account Manager at the F.W. Webb Commercial and Industrial Pump Division, AMTROL’s pump supplier. “Reliability is key for their operation,” said Buckless. “Unfortunately, 30-year-old ADS technology has limitations in an extremely demanding application like a filter press, and that’s what was causing their issues.”

As a solution, Buckless suggested that AMTROL compare the operation of Wilden AODD pumps utilizing the new Wilden Pro-Flo SHIFT ADS with the existing pump/ADS equipment.

“I recommended pumps with the Pro-Flo SHIFT ADS because their cutting edge technology provides extremely reliable, efficient operation and they could be easily piped into their existing installation,” he said. “This provided an opportunity to evaluate the Pro-Flo SHIFT side-by-side with their current ADS technology.”

AMTROL installed new Wilden PS8 50-mm (2-inch) Original® Series clamped AODD pumps equipped with the Pro-Flo SHIFT ADS and immediately noticed improved pump reliability.

“The results were astounding,” said Perrotti. “The Pro-Flo SHIFT eliminated all mid-process stalling. Now, when a pump is not running, we know that the filter press’ chambers are full. This incredible leap in ADS technology solved several major issues. The additional unexpected benefit was decreased maintenance. Because the SHIFT doesn’t need oil, the bothersome maintenance tasks of monitoring ADS-unit oil levels and adding it when they run low has been eliminated. In addition, we’ve cut maintenance costs considerably since we no longer need to disassemble the pumps in order to restart them every time they stall.”

AMTROL Paint and Environmental Supervisor Josh Hytinen commented, “The Pro-Flo SHIFT also increased our

Conclusion

As operations at AMTROL’s West Warwick facility continue to expand, the enhanced reliability and processing capability of its filter presses will be key in handling the increasing volume of waste products efficiently, cost effectively and on schedule. For AMTROL, the Wilden Pro-Flo SHIFT ADS will play a key role in assuring optimum filter-press operation with its ability to deliver the required power, reliability and efficiency in high-demand operations such as filter presses. WWA