

NETZSCH Lube Pump Installation Provides Solution for Municipal Wastewater Treatment Plant

Faced with a pump installation that could not handle a dewatered sludge application, the City of North Las Vegas turned to NETZSCH for a quick turn-around on a custom lube pump solution.

Located in Clark County Nevada, the city of North Las Vegas is the fourth largest city in the state. Serving a population of 224,000 residents, the city operates a state-of-the-art water reclamation facility that handles a current average flow of 17 million gallons (64.5 million liters) per day. This facility provides the city with the ability to maximize the operational efficiency of wastewater treatment and water resources as well as produce extremely clear reclaimable water.

Recently the City's Water Reclamation Facility installed three centrifuges to dry sludge along with three progressing cavity pumps (from a NETZSCH competitor) to pump the dewatered sludge from the treatment plant approximately 100 feet (30.5 meters) to a loading dock where it is loaded into trucks for transport. The progressing cavity pumps were designed to operate at 200 psi (14 bar), but during plant operation, the actual system pressure was 290 psi (20 bar). With the head too high for the pumps to handle, maintenance problems began to mount including pressure switch failures and accelerated wear on major pump components.

Customer reaches out for a quick solution

Bruce Loring, a vice president with James Cooke & Hobson, Inc. in Phoenix took the call from the customer, including Kenny Eickelberg, plant engineer and Layton Brown, chief of maintenance,



both with the City of North Las Vegas. Loring notes that with the ongoing operational and maintenance issues in this dewatering application, "the customer had a need to get a lube pump system designed, built and installed quickly." Loring recalls that, "the manufacturer of the original pump system quoted a 15-week delivery schedule for a lube pump system. NETZSCH already had a presence with this customer with the polymer pumps and thickened sludge pumps operating in the water reclamation plant and when

Pump Data

Pump type:	Progressing Cavity
Capacity:	0.5 – 1.0 gpm (1.9 – 3.8 lpm)
Pressure:	300 psi (20 bar)
Medium:	Water
Operating Temperature:	Ambient
Viscosity:	1 cps
Operating Speed:	300 – 600 rpm

I reached out to NETZSCH, they said they could design, build and install a custom lube pump solution in six weeks.”

The technical solution from NETZSCH was to use a Friction Loss Reduction System (FLRS). The FLR System consists of a multi-stage NETZSCH progressing cavity pump and a NETZSCH ring nozzle. The system works by pumping a lubricant – in this case water – through the pump to the ring nozzle. The 8-inch (200 mm) NETZSCH ring nozzle was designed to provide a continuous 360° even layer of water around the entire pipe surface so that the dried sludge would move through the pipe at a lower pressure. In this case, the customer decided to use water as the lubricant instead of polymer to reduce costs. While the original design of the dewatered sludge pumping system did not include a lube system, the NETZSCH FLR system was able to be installed in the first possible flange connection after the competitor’s pump. NETZSCH is also able to supply products for pumping sludge cake of up to 50% of solids content, equipped with bridge-breaking devices such as paddles and patented aBP-Modules®.

System Pressure is Lowered

Loring noted that, “by continuously injecting water in the annulus of the pipe, it lowered the pressure tremendously.” The resulting customer benefit was that the pressure in the system was reduced from almost 300 psi (20 bar) to 150 psi (10 bar) leading to safer system operation. Once the first NETZSCH Friction Loss Reduction System was installed, it was quickly followed by two more so

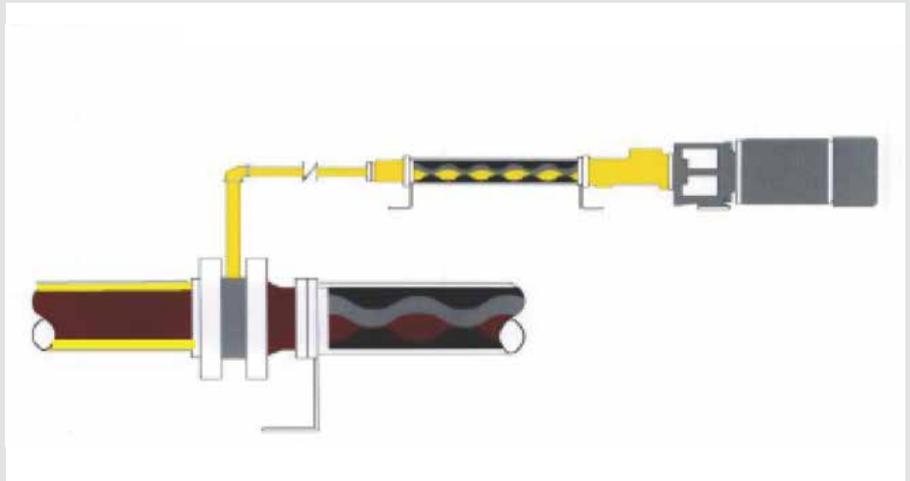


Diagram of NETZSCH FLR system multi-stage progressing cavity pump installed at customer site.

that all three of the sludge drying lines at the water reclamation plant are now served by a NETZSCH FLR system. With the NETZSCH FLR system operating for approximately two years, the customer has seen a longer service life of parts (rotor/stator) for the dewatered sludge pump. An additional benefit for the customer was a lower energy demand for pumping the dewatered sludge.

The bottom line, Loring said, is that, “without the lube pump solution from NETZSCH, the other pump systems would not have survived.”

Contact NETZSCH

NETZSCH customers rely on our rigorous standards in design, engineering and manufacturing to deliver products with absolute functional reliability and exceptional quality. NETZSCH service, like NETZSCH quality, is geared to surpass our customers’ expectations. For more information on this customer application and NETZSCH products and services:

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