

Case | Shenyang, China

As cities grow, so does their waste — and highly potent water leachate


Treating that water is no problem for this Chinese company



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Xu Chuang, Programme Manager of WELLE, says the standards for treating landfill water leachate are getting stricter, so the technical requirements are getting higher. “That’s why we use Grundfos pumps,” he says.

“Grundfos pumps are very adaptable when it comes to high-potency waste leachate.”

Xu Chuang, Programme Manager
Jiangsu WELLE Environmental Co.



The situation

Shenyang, China, a city of around 8 million people, is mostly flat. But just north of the city in Daxing, a mountain rises from the plains. This is a mountain of rubbish, supplied by the city’s residents. It is one of two landfills that serves the municipality. As the city grows, the landfill grows with it – along with the corresponding environmental challenges.

Every day, garbage trucks bring about 3500 tonnes of rubbish to the landfill from Shenyang. Some of the garbage contains liquids. Rain and snow add more. All of this seeps to the bottom of the landfill pit, where it collected into a water leachate accumulation pond for treatment.

The treatment system was built and operated by Jiangsu WELLE Environmental Company. WELLE is one of the top companies in China specialising in research, engineering and processing of domestic and organic waste. WELLE’s on-site Programme Manager, Xu Chuang, participated in the design and construction of the Daxing landfill. He says Chinese municipalities and treatment companies are facing ever tougher challenges. The first one is urban growth.

“Increased urban population increases the amount of domestic waste,” says Xu Chuang. “So the amount of leachate also increases.

The deep membrane treatment facility for leachate water at the Daxing landfill for Shenyang, with Operations Manager **Zhang Shuai** of WELLE.



We have to operate at full capacity to meet the standards for discharge water. Further, those standards are getting stricter. So the requirements for technology are getting higher. If the equipment fails, our output is greatly affected.”

The leachate processing system works like this: WELLE pumps the leachate water into a regulating pond, where it settles. From there, it goes into a biochemical reactor system for processing. From there, it goes through a deep membrane treatment. When it meets the standards, it is discharged.

The solution

“This landfill is under a lot of pressure,” says Xu Chuang. “WELLE requires its equipment to be stable. That’s why we are using Grundfos pumps.” The Daxing treatment plant uses a range of Grundfos industrial and water treatment pumps – from heavy-duty, multistage CRN pumps to NKG and NBG end-suction pumps to BM high-pressure booster modules.

“We have cooperated with Grundfos for more than 10 years. Grundfos pumps are very adaptable when it comes to high-potency waste leachate,” says Xu Chuang. “The pumps are very reliable in operation. And Grundfos offers a very timely after-sales service. This ensures stable operation of our systems.”

Plant Operations Manager Zhang Shuai adds that there are very few breakdowns during operation. “Operation is very stable,” he says. “And the Grundfos equipment is easy to use. It’s very easy to understand.”



Just a few of many Grundfos pumps (these are CRN and CMs) in the WELLE membrane treatment facility.



The membrane treatment facility at WELLE's leachate processing plant north of Shenyang.

The outcome

Xu Chaung says that the treated water from the Daxing landfill meets both the strict provincial and national standards. "The treated water can be discharged directly," he says. "Some of the water is reused."

He says that to him it is quite obvious why WELLE and Grundfos have cooperated for so many years. "We have a common philosophy. Both companies want to protect the earth and create more sustainable development."

He says he feels proud to be doing his small part in caring for the environment at the Daxing landfill. "This kind of work is very dirty, hard and exhausting. But I love my job. Because I'm making a contribution to environmental protection."

Grundfos Supplied

Grundfos has supplied a full range of industrial pumps to WELLE for the Daxing landfill leachate water treatment.

Topic: Landfill water leachate treatment

Location: Shenyang, China

Customer: Jiangsu WELLE Environmental Company

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