SNP | THE SPRAY NOZZLE PEOPLE

Case Study

STORM TANK CLEANING

Cleaning large, uncovered tanks

THE SITUATION

A leading UK engineering firm approached SNP for a tailored solution to clean six wastewater tanks at a wastewater treatment facility. This project formed part of their client's programme of enhancing wastewater quality across ts treatment sites.

The tanks measured 10m x 34m, with depths ranging from 2.4m at the shallow end to 3.5m at the deep end, providing a favourable drainage gradient. The wastewater treatment engineers faced a number of challenges, however, particularly the accumulation of solid residues on the tank walls and floor that were more substantial than in normal storm tanks. A solution was required that would provide a robust clean while minimising the time spent on the cleaning process.

In addition, the engineering company wanted to confirm the proposed StormBlaster™ solution would not cause any damage to the recently repaired tank floor and walls.

CHALLENGES

- Retrofitting to existing tanks: The solution needed to fit seamlessly into existing infrastructure without disrupting operations.
- Nozzle head positioning: The tanks were open and very large, requiring an innovative mounting solution that ensured the cleaning jets reached the tank's floors and walls
- Excess solids accumulation: The tanks contained more solid residues than typical storm tanks, requiring a stronger and more efficient cleaning process.
- Minimal cleaning time: The client wanted to keep the cleaning time to a minimum without compromising the quality of the process.
- Preserving recent repairs: The floor and walls of the tanks had recently been repaired, and there was concern that the cleaning equipment could cause damage to these repairs.
- Accessibility: The proposed solution must allow site operators to access it from outside the tank for servicing and maintenance, avoiding the need for time-consuming and costly tank entry.

THE SOLUTION

SNP's engineering team developed an efficient cleaning system using StormBlaster technology, dividing each of the six tanks into three "virtual" tanks with three StormBlaster units each.

To enhance accessibility and facilitate equipment placement, SNP incorporated walkways between tanks 1 & 2, 3 & 4, and 5 & 6, ensuring easy access to all tanks and attachment points for the StormBlasters. Typically, the StormBlaster is best positioned in the centre of the area to be cleaned, but due to the open nature of the tanks, this was not feasible. SNP proposed the use of swing arms, which were attached to the tank walls and could rotate 90° to position the nozzles as close as possible to the middle of the tanks during cleaning and be folded back flush with the walls when not in use.

The StormBlasters usually operate sequentially, one at a time to optimise pump size and minimise costs. However, with a large pump already available on-site, the client chose to run all three cleaning heads simultaneously per tank, significantly reducing cleaning cycles without sacrificing performance.

THE PRODUCT

StormBlaster™

- 18 units, with 180° down nozzles
- 2 x 12 mm nozzles
- 316 stainless steel
- Tested to 10 bar

Swing Arms

- 18 units
- 316 stainless steel
- 600mm drop
- Full welding certification
- Tested to 15 bar

Tank Shape	Tank Length (m)	Tank Width (m)	Tank Height (m)	Nozzle Size (mm)	Jet length (m)	Flow Rate (l/min)	Cycle Time (min)	Required water cycle (l)
Rectangular	34	10	2.4-3.5	12	17	315	26	8,190
Total water consumption for 18 nozzles (3 for each of the 6 tanks)								24,570

Water Consumption and Cycle Time @ 10 bar pressure

RESULTS

The implementation of SNP's innovative solution delivered the following benefits:

- Thorough cleaning: The use of StormBlaster with swing arms ensured a high-performance clean that addressed the excess solid residue in the tanks.
- Reduced cleaning time: The simultaneous operation of all three cleaning heads significantly reduced the time required to clean each tank
- Protection of tank infrastructure: The thoughtful design and controlled water jet application safeguarded the recently repaired tank surfaces from damage.
- Operational efficiency: The retrofitted solution integrated seamlessly with the existing infrastructure, minimising disruptions to ongoing operations.

CONCLUSION

SNP's expertise in scoping and designing StormBlaster systems, combined with the proven StormBlaster technology, effectively met the objectives of the engineering company and its client. By providing a tailored, efficient solution, SNP ensured thorough cleaning, reduced downtime and protected the integrity of the recently repaired tank surfaces. The project successfully aligned with the client's goals for enhancing wastewater treatment while minimising operational disruption and cleaning time.

TO DISCUSS YOUR STORM TANK CLEANING PROJECT, CONTACT OUR TEAM

+44 (0)1273 400092 enquiries@spray-nozzle.co.uk www.spray-nozzle.co.uk