Case Study

STORM TANK CLEANING

Cleaning large covered tanks with obstacles

THE SITUATION

An engineering firm contacted SNP for a StormBlaster™ cleaning system to retrofit a cleaning solution for a rectangular, covered storm tank at a wastewater treatment plant in Ireland. The project was part of a regional initiative to upgrade wastewater treatment facilities in collaboration with the area council.

The tank design presented unique challenges. It had two rectangular 'cells' of different lengths, one of 11.5m x 8.8m and one of 14.9m x 8.8m with a number of walls/columns inside for structural support. In addition, there were large discharge pumps which had to be worked around.

The customer wished to keep the number of StormBlasters to a minimum and to keep operating pressure as low as possible.

CHALLENGES

- Internal Walls: Structural walls/columns within the tank caused shadowing, resulting in areas that were difficult to reach during cleaning.
- Large Discharge Pumps: The placement of the pumps presented further obstructions which had to be taken into consideration
- Retrofit Constraints: The solution had to integrate seamlessly into an existing covered tank with minimal structural changes.
- Cost - The customer wanted to keep the number of cleaning heads as low as possible

THE SOLUTION

The presence of the supporting columns inside the tank and the positioning of the pumps meant additional design considerations were required to ensure the StormBlaster heads were positioned optimally, allowing the jets to evenly reach every corner of the tank without any shadowing effects (where obstacles prevent jets from hitting the walls).

To address the challenges posed by the tank design, SNP developed a tailored cleaning strategy by dividing each tank into three virtual sections (see diagram on next page), each serviced by three dedicated 10mm StormBlaster units to maximise cleaning efficiency.

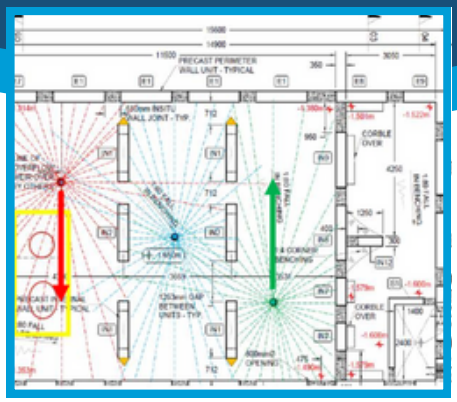
Cleaning heads were strategically positioned closer to obstructed regions and to improve coverage behind the large pumps.

This approach included extending the StormBlaster operation to a cycle and a half instead of a single cycle, ensuring that cascading water reached shadowed areas and effectively dislodged sludge. While small areas near internal wall units remained untouched due to shadowing, these limitations were acknowledged and accepted by the client.

THE PRODUCT

StormBlaster™

- 6 StormBlaster units
- 2 x 10mm size nozzles
- 316 stainless steel
- Tested to 10 bar



Positioning of StormBlasters in 'cell' 1

	Tank Shape	Diameter (m)	Tank Width (m)	Tank Height (m)	Nozzle Size (mm)	Jet length (m)	Flow Rate (l/min)	Cycle Time (min)	Required water cycle (l)
Cell One	Rectangular	11.5	8.8	4	10	13	190	36	6,840
Cell Two	Rectangular	14.9	8.8	4	10	13	190	36	6,840
								Total water consumption for SIX StormBlasters	41,040

Water Consumption and Cycle Time @ 6 bar pressure

RESULTS

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

- Cost efficiency: Kept pressure and cleanng head count low, minimising operational costs.
- Customisation: Tailored to the tank's specific dimensions and structural features.
- Comprehensive cleaning: Effective removal of sludge despite challenges posed by walls and pumps.
- Reduced water usage: Optimised cleaning cycles ensured minimal water wastage

CONCLUSION

SNP's expertise and innovative use of StormBlaster technology enabled our client to retrofit the storm tank effectively. This solution not only addressed complex structural challenges but also aligned with the regional goals of modernising wastewater treatment infrastructure while maintaining cost and resource efficiency.

TO DISCUSS YOUR STORM TANK CLEANING PROJECT, CONTACT OUR TEAM

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