

The STREAMWISE Solution: Innovation Leads to Cost-Cutting and Efficient Production in Meat Processing Operations

BACKGROUND

Meat processing is a water intensive operation. For every ton of meat produced, up to 6250 liters of wastewater containing high levels of total suspended solids and organics is generated. Wastewater treatment poses a significant impact on total cost of operations. Meat processors are looking for innovative ways to improve their wastewater treatment performance and lower their overall operating costs while increasing their personnel efficiency.

STREAMWISE technology for DAF is helping an Australian small goods meat processor significantly improve its waste treatment operations through:

1. Robust online sensors
2. Proprietary AI based chemical control
3. 24/7 performance monitoring, alarm notification and expert oversight

OPPORTUNITIES

An Australian small goods meat production facility processes on average 38 tons of ham per day for local market consumption and had an opportunity to increase production due to increased demand. To successfully capitalise on this opportunity, they had to first address the issues with their wastewater treatment. Their DAF had become a production bottleneck due to wastewater flow rates continually reaching or exceeding their permitted discharge limits.

This, combined with inexperienced operators conducting manual processes that resulted in mis-dosing, and mismanaging stock supply, meant that the WWTP operation was facing significant internal pressure to improve operations.

The processors in this plant needed effective and efficient ways to optimise and automate wastewater treatment operations. So, they consulted Waterwerx on the use of its STREAMWISE Technology for DAF to help the plant:

1. Improve DAF contaminant removal efficiency and consistency benefitting production while decreasing wastewater volume and staying in compliance with local discharge limits.
2. Reduce operator oversight while minimising the need for local onsite waste treatment expertise.
3. Minimise DAF operating costs boosting overall production.

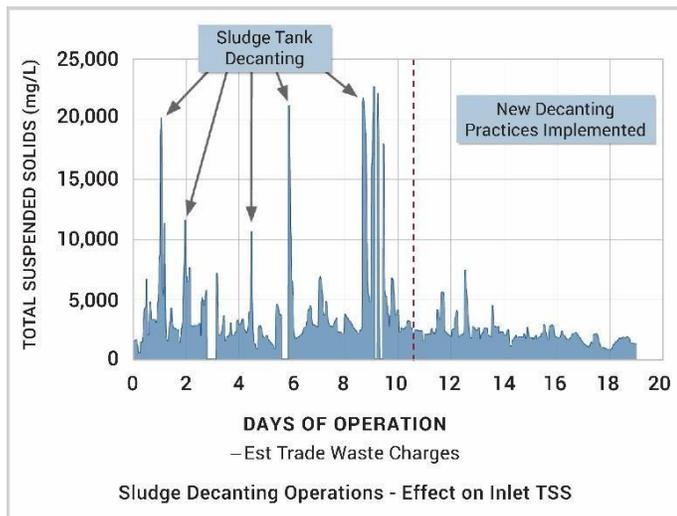
Soon after the start-up of the STREAMWISE unit, Waterwerx's remote experts discovered high TSS spikes in the influent water to the DAF. Working with the local operators and Environmental Manager the source of the TSS spikes was traced to sludge tank decanting practices resulting in sludge being drained back into the DAF each time the decanting operation was performed, resulting in significant plant upsets. Better decanting practices were implemented

WASTEWATER IN MEAT PROCESSING: A CASE STUDY

STREAMWISE SOLUTION

Waterwerx's STREAMWISE technology continually optimises DAF operations, automatically responding to variations in feedwater quality and quantity. Reliable online sensors monitor DAF inlet and outlet water quality every 3 seconds, proprietary AI driven control algorithms optimise system performance in real-time and cloud-based analytics provides continuous improvement insights. This comprehensive IoT approach to DAF operations ensures the best performance at the lowest cost

eliminating the high TSS spikes, lowering polymer usage and reducing average effluent TSS.



STREAMWISE RESULTS

In Table 1, we see the improvement in DAF operation from Existing to STREAMWISE control.

DAF PERFORMANCE (DISCHARGE)

	EXISTING	STREAMWISE	IMPROVEMENT
Production (tonnes)	4,390	5,048	15%
TSS (Kg)	23,20	19,156	-17%
Bod (Kg)	53,49	50,544	-6%
Phosphorous (Kg)	3,566	3,759	5%

Table 1: DAF Performance – Existing vs STREAMWISE

STREAMWISE control improved system performance removing more contaminants at the DAF and sending less total TSS and BOD to the local water authority, even while production increased by 15%.

In Table 2, we see the effect of STREAMWISE's proprietary control vs manual control on the sites total cost of operation. STREAMWISE control provided a significant reduction in chemical costs of 45% even while production increased by 15%. The STREAMWISE system will reduce overall costs by 24% and save this meat processor an estimated \$152,000 per year.

ANNUALISED TCO SAVINGS

	EXISTING	STREAMWISE	IMPROVEMENT
Chemicals	\$118,955	\$65,212	-45%
Trade Waste	\$270,000	\$232,265	-14%
Sludge	\$227,600	\$178,800	-21%
Labour	\$15,600	\$3,900	-75%
TOTALS	\$632,185	\$480,177	-24%

Table 2: Total Cost of Operation – Existing vs. STREAMWISE

CONCLUSION

STREAMWISE for DAF technology assisted this meat processing plant to increase production and be able to process wastewater at a lower cost and more efficiently than ever before. All of this was achieved while reducing operator involvement and increasing operational visibility. In addition, more efficient and consistent DAF operations will support future water reuse and recycling efforts.