WASTE WATER

Wastewater Polymer Reduction Case Study Yorkshire, UK

Trials at wastewater plants showed *Hydro*FLOW® reduced polymer demand in sludge dewatering while maintaining output quality and improving process stability.

11%	↑	✓	✓
Centrifuge Polymer Reduction	Lower Centrifuge Stress	Maintained Output Quality	Stable Operation

⇄ BEFORE & AFTER

BEFORE

- ✗ High polymer dosing needed
- ✗ Risk of floc loss at lower dose
- ✗ Higher stress on centrifuge

AFTER

- ✓ Polymer dosing reduced
- ✓ Output quality maintained
- ✓ Process ran more stably

OVERVIEW

Esholt Wastewater Treatment Plant is Yorkshire Water's second largest site, serving around 750,000 people in Bradford and Leed. In collaboration with Brettex, a trial was performed to determine if *Hydro*FLOW® units could reduce the polymer required in a dewatering centrifuge located before a Thermal Hydrolysis Plant (THP).

⚠ CHALLENGE

The site needed to cut polymer use while keeping cake dryness and centrate quality within process limits.

- Polymer demand was high on sludge dewatering equipment
- Cake dryness needed to be maintained at approximately 21% to meet THP input requirements.
- Centrate quality had to remain acceptable throughout the trial
- Lower dosing risked visible floc loss and poor output

SOLUTION

*Hydro*FLOW® i160 was installed on the incoming sludge feed pipe prior to polymer injection on centrifuge 3.

UNIT INSTALLED

1x *Hydro*FLOW® i160

INSTALLATION POINT

Incoming sludge feed pipe before polymer injection

TRIAL DATE

October-November 2018

TARGET OUTPUT

Approx. 21% cake solids before THP

INSTALLATION

On sludge feed pipe

MONITORING

Process readings

RESULTS

11% Less Polymer

Esholt centrifuge trials cut polymer use by 11% while maintaining output quality.

Rapid Floc Loss Off

Turning off HydroFLOW® led to rapid loss of flocculation & change in output quality.

Higher Differential

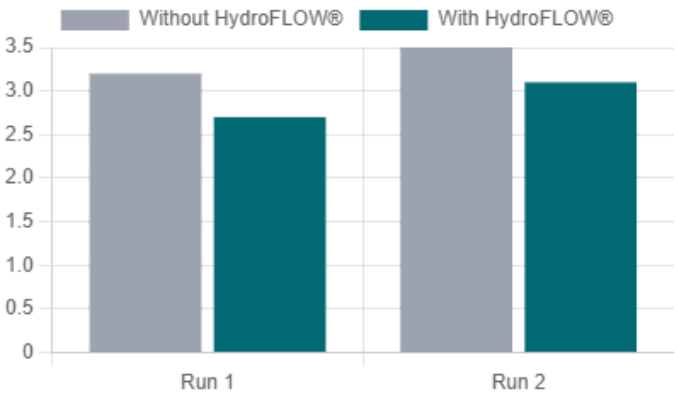
The HydroFLOW® line showed higher differential RPM, indicating lower centrifuge stress.

Quality Maintained

Centrate TSS and cake dryness stayed within acceptable operating limits.

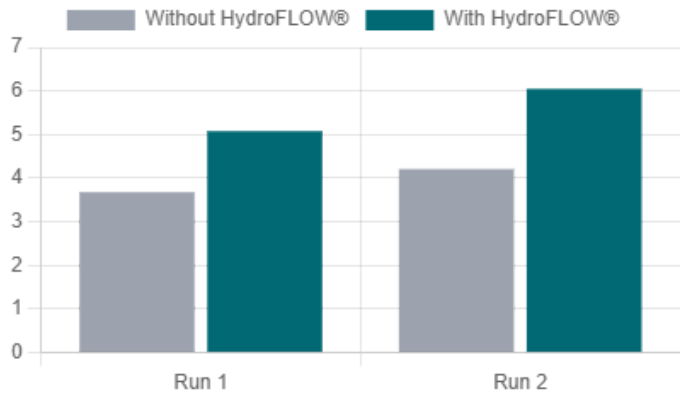
GRAPHS

Esholt polymer dosage comparison (kg/TDS)



Less polymer used with HydroFLOW® during matched runs.

Esholt differential RPM comparison



Higher differential RPM on the HydroFLOW® line suggested lower system stress.

KEY TAKEAWAY

Summary

Trials at Esholt showed polymer dosing could be reduced while maintaining required output quality. At Esholt, matched centrifuge trials achieved an 11% reduction and showed higher differential RPM on the treated line. Switching the *Hydro*FLOW® unit off quickly caused visible loss of flocculation.

11%	↑	✓
CENTRIFUGE REDUCTION	LOWER CENTRIFUGE STRESS	MAINTAINED OUTPUT QUALITY

🖼️ ADDITIONAL PHOTO EVIDENCE

RESULTS

Slurry output after HydroFLOW® off

BEFORE

High TSS without HydroFLOW®

AFTER

Stable cake with HydroFLOW® on