



STRUVITE

Tulsa Wastewater Struvite Control Case Study Tulsa, Oklahoma, USA

A 90-day trial prevented new struvite scale on the cleaned belt press drum surface and softened existing deposits, making them considerably easier to remove.

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New Scale on Cleaned Surface

90 days

Continuous Trial Operation

✓

Existing Scale Removed

5

Belt Presses in Funded Expansion

BEFORE & AFTER

BEFORE

- Heavy struvite encrusted the belt press drum
- Cleaning required 3,500 psi water
- Scale removal was frequent and labour-intensive

AFTER

- ✓ No new scale formed on the cleaned surface
- ✓ Existing deposits became noticeably thinner
- ✓ Power washing removed 3-4" scale pieces



BEFORE

Cleaned drum surface before the trial



AFTER

Drum surface after the 90-day trial



OVERVIEW

Tulsa Southside Wastewater Treatment Plant is one of four plants serving the City of Tulsa. Designed for 42 million gallons per day, it treats an average flow of 20 million gallons daily. Anaerobically digested sludge is conveyed approximately two miles for dewatering by five belt filter presses. Persistent struvite scaling required frequent, labour-intensive cleaning using 3,500 psi water. A 90-day trial, independently verified by CH2M, evaluated Hydropath technology on one press.



CHALLENGE

Struvite accumulated across all five belt filter presses, requiring frequent and labour-intensive high-pressure cleaning.

- Heavy struvite encrustation covered the drum and other belt press surfaces.
- Each of the plant's five belt filter presses experienced scale buildup.
- Operators needed 3,500 psi water to loosen small pieces of hard scale.
- Frequent scale removal placed a substantial labour burden on plant staff.



SOLUTION

One *HydroFLOW*® i Range unit operated on the 6" sludge feed pipe to an Andritz belt filter press. A cleaned drum section was monitored for new scale formation during the 90-day trial

UNIT INSTALLED

1x *HydroFLOW*® i Range

INSTALLATION POINT

Pump discharge, 50 ft upstream of the Belt Press

PIPEWORK AND FLOW

6" ductile iron; 120 gpm at 12 psi

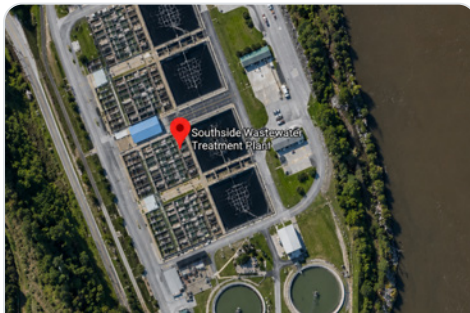
TRIAL PERIOD

17 February to 31 May 2017



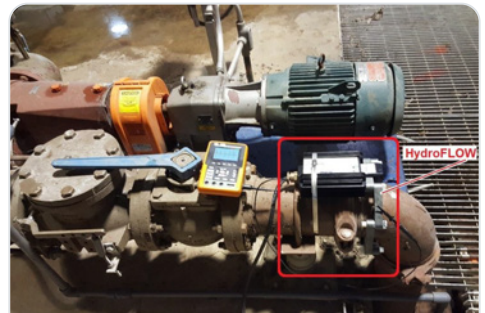
INSTALLATION

HydroFLOW® on belt press pipe



SITE

Tulsa Southside WWTP



INSTALLATION

Test unit installation



RESULTS

No New Scale Formation

The cleaned drum surface remained free from new struvite scale throughout the trial.

Existing Scale Thinned

Areas with heavy initial encrustation showed noticeably thinner deposits after 90 days.

Scale Easier to Remove

Some deposits could be scraped back to bare metal, which was not possible before.

Scale Removed

Existing scale was removed more easily during cleaning.

Lower Cleaning Effort

Operators found power washing much less labour-intensive than routine cleaning.

Treatment Expansion Planned

Positive results led the plant to fund treatment of header feeding all five belt presses.

KEY TAKEAWAY**Struvite Control at Tulsa**

One *HydroFLOW*® I Range unit operated continuously for 90 days on the sludge feed to a belt filter press at Tulsa Southside WWTP. Independent verification found no new scale on the cleaned drum surface, while existing deposits became thinner and easier to remove. Following the positive trial, the plant allocated funding for a custom unit to treat the common header serving all five presses.

90 days

THIRD-PARTY VERIFIED TRIAL

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NEW SCALE ON TEST AREA

5

BELT PRESSES FUNDED

**ADDITIONAL PHOTO EVIDENCE****BEFORE***Heavy scale on the exterior of the Belt Press***BEFORE***Struvite scale on the exterior of the drum***BEFORE***Heavy struvite scale on the belt press exterior*

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