



● AGRICULTURE

Al Jouf Olive Grove Irrigation Case Study **Al Jouf, Saudi Arabia**

A six-month evaluation reduced biofilm and microbiologically induced corrosion (MIC), improving water quality, reducing emitter clogging and lowering maintenance.

30→2 min

Typical Restart Flushing

50%

Lower Emitter Clogging
Risk

4x

Longer Maintenance
Interval

MIC ↓

Clear Evidence Of Biofilm
Reduction



BEFORE & AFTER

● BEFORE

- Restart flushing took 30 minutes or more
- Over 50% of emitters had clogging issues
- Brown water contained fine iron particles

● AFTER

- ✓ Typical restart flushing fell to 2 minutes
- ✓ Clogging risk reduced by up to 50%
- ✓ Water became clear without brown colour



BEFORE

Rust-coloured water before treatment



AFTER

Clear water after treatment

OVERVIEW

AJACO operates a 60,000-hectare agricultural farm in Al Jouf. Each 600-metre-deep well supplies drip irrigation across 12 hectares through mechanical and cartridge filtration, steel pipework and a plastic (polyethylene) distribution network. Microbiologically induced corrosion (MIC), biofilm and minerals caused contaminated water, emitter clogging and frequent maintenance issues. More than 50% of emitters were affected, requiring weekly flushing and acid injection.

CHALLENGE

Corrosion, biofilm and mineral deposits clogged emitters, increased flushing and raised maintenance.

- Well restart flushing took 30 minutes or more.
- More than 50% of emitters experienced clogging.
- Weekly flushing and acid injection were required.
- Daily winter restarts increased water loss and labour.

SOLUTION

4 x *HydroFLOW*® custom 10" units were installed on wells A127 and D97. Each well had two units: one before filtration and one after filtration.

UNITS INSTALLED

4 x *HydroFLOW*® custom 10"

TREATED WELLS

A127 and D97

INSTALLATION LAYOUT

Two units per well

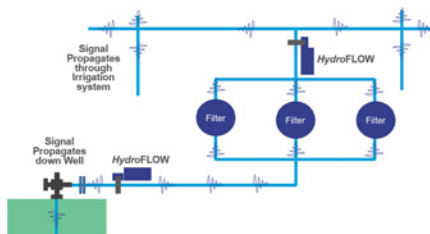
EVALUATION PERIOD

Six months



INSTALLATION

HydroFLOW® units installed at well A127



DIAGRAM

HydroFLOW® installation layout



INSTALLATION

HydroFLOW® units installed at well D97

RESULTS

Restart Flushing Reduced

Typical flushing fell from about 30 minutes to 2 minutes, with a 5-minute maximum.

Improved Water Clarity

Dirty brown water became clear at both well & network outlets confirmed by untreated well.

Reduced Suspended Material

After initial clean-up, biofilm and MIC removal meant suspended materials were reduced.

Lower Clogging Risk

Emitter clogging risk reduced by up to 50% compared with the previous year.

Less Frequent Maintenance

Flushing intervals extended from 5 days to 20 days.

Corrosion Reduced

Biofilm reduction inhibited MIC activity. Orange-coloured deposits blackened.

KEY TAKEAWAY**Summary**

A six-month evaluation reduced biofilm and microbiologically induced corrosion (MIC), resulting in cleaner wells and pipework, clearer water, reduced water wastage and lower maintenance requirements.

30→2 min

TYPICAL RESTART FLUSHING

50%

LOWER EMITTER CLOGGING RISK

4x

LONGER MAINTENANCE INTERVAL

**ADDITIONAL PHOTO EVIDENCE****BEFORE***Orange biofilm and corrosion on A127 pipework***BEFORE***Orange biofilm and corrosion deposits removed from pipework***BEFORE***Pipe sections coated with corrosion deposits***BEFORE***Brown irrigation water indicating fine particles***BEFORE***Heavy corrosion deposits inside the pipe***BEFORE***Sand-like deposits collected before installation***AFTER***Clear irrigation water after treatment***AFTER***Cleaner pipe interior after treatment***AFTER***Larger deposits released during the cleaning phase*



UNTREATED

Irrigation outlet at untreated comparison well D96



BEFORE

Irrigation outlet at well D97 before treatment



AFTER

Irrigation outlet at well D97 after treatment



BEFORE

Gelatinous biofilm inside untreated irrigation network pipe



AFTER

Biofilm reduced inside treated irrigation network pipe



WATER COMPARISON

Treated D97 and untreated D96 irrigation water



INSPECTION

Deposits released during flushing



INSPECTION

White mineral crystals released from the system



INSPECTION

Detached mineral deposits collected during inspection

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