



DESALINATION

RO Desalination Plant Case Study Kibbutz Ma'agan Michael, Israel

HydroFLOW® improved RO recovery, reduced biofouling and extended cartridge lifespan in a high salinity desalination plant.

81%

Peak Recovery Rate

250d

Cartridge Lifespan



Biofouling



Fewer Shutdowns



BEFORE & AFTER

BEFORE

- Bacteria and biofouling in membranes
- Frequent cartridge clogging
- Regular shutdowns for disinfection

AFTER

- ✓ Bacterial count significantly reduced in 2 weeks
- ✓ Shutdowns reduced
- ✓ Cartridge life extended to 250 days



OVERVIEW

The Kantor desalination plant in Kibbutz Ma'agan Michael produces desalinated water using reverse osmosis from a high salinity feed water (8,000–12,000 TDS) from a coastal well source. Operating two reverse osmosis systems at 65 m³/h each, the facility experienced biofouling, bacterial growth, cartridge clogging and unstable recovery performance.



CHALLENGE

High salinity feed water caused biofouling, bacterial growth and operational instability.

- Bacteria and biofouling in membranes
- Frequent cartridge clogging
- Regular shutdowns for disinfection
- Unstable recovery ratios



SOLUTION

3x HydroFLOW® i100 units were installed on the raw water feed and post high pressure pump lines to reduce biofouling and improve RO system performance.

UNIT INSTALLED

3x HydroFLOW® i100

INSTALLATION POINT

Feed line and post high-pressure pump

INSTALL DATE

December 2017

PIPE SIZE

3 inch pipe



INSTALLATION

Unit on feed pipe



SITE

RO membrane system



MONITORING

Signal Verification



RESULTS

% Recovery Improvement

Recovery increased from 65–75% to up to 81%, stabilising at 77–79%

Reduced Biofouling

Lower biofouling and bacterial activity observed throughout the trial.

Extended Cartridge Life

Replacement interval increased from 30–60 days to 250 days, by improved pre-filtration

Reduced Maintenance

Shutdowns reduced with less need for disinfection

Improved Stability

System operated with stable pressure, reduced ΔP indicating improved membrane condition

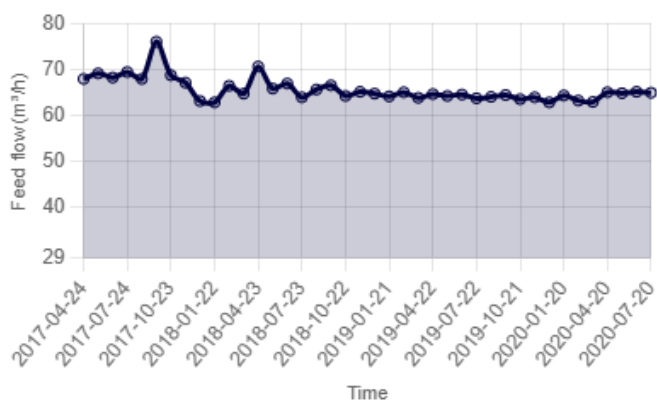
Higher Output

Improved permeate production with reduced brine waste



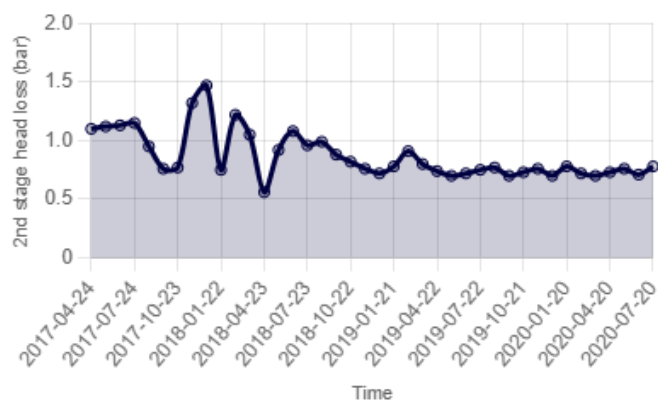
GRAPHS

Feed Flow Over Time



Feed flow remained stable throughout the RO monitoring period.

2nd Stage Head Loss Over Time



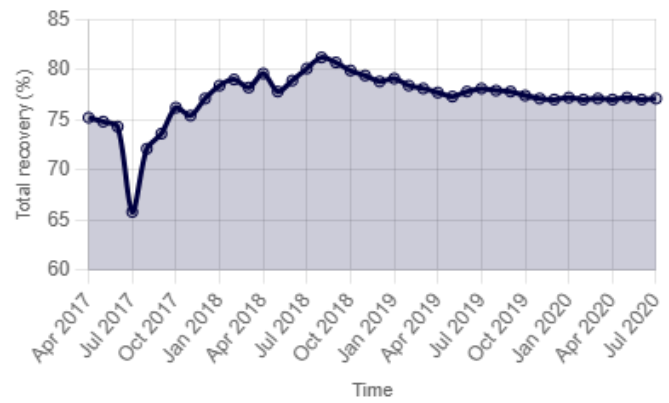
Reduced head loss indicates improved membrane performance.

1st Stage Head Loss Over Time



Changes in head loss reflect membrane condition over time.

Total Recovery Over Time



Recovery reached 81% and later stabilised around 77–79%.



TESTIMONIAL

"The bad smell which used to occur when opening membrane pressure vessels no longer exists, indicating improved membrane condition."

— Desalination Plant Manager

KEY TAKEAWAY

Summary

Hydropath treatment improved RO plant performance at the Kantor desalination facility by reducing biofouling and stabilising operation. Recovery increased to 81% and stabilised at 77 to 79%, while shutdowns were reduced and cartridge life extended to 250 days.

81%

PEAK RECOVERY

250d

CARTRIDGE LIFE



MAINTENANCE

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