

# Template Assisted Crystallization for Scale Control in Low Pressure Reverse Osmosis

Peter Fox

PROPOSAL: ASU-P02-F2018  
STATUS: X NEW Continuation

## Rationale

- Reverse osmosis systems for point of use of low pressure commercial applications will foul readily with calcium minerals. Template assisted crystallization has the potential to prevent calcium mineral fouling without the addition of chemicals thereby maintaining efficient reverse osmosis operation.

## Objective

- To evaluate template assisted crystallization (TAC) technology for control of scale in low pressure reverse osmosis point of use treatment systems.
- To evaluate potential monitoring strategies to determine if TAC is forming crystals

## Approach

- A reverse osmosis system will be operated at constant flux with and without a OneFlow TAC scale prevention system.

- Free calcium ion concentrations will be measured with a calcium ion selective electrode and homogeneous crystal formation will be measured using a green laser light absorbance.

## Variables

- Pressure, Flowrate, Temperature, Flux
- Calcium ions, alkalinity, pH, Langelier Index

## Key Deliverables

- Data that demonstrates the efficacy of TAC at controlling scale formation in reverse osmosis treatment systems..
- Demonstration of green laser light absorbance as a monitoring tool for assessing crystallization efficacy.

## Budget Requested

- \$26,000

## Project Performance

- January 2019 – July 2019