CANDO Pilot Project

BACWA Annual Meeting

January 30, 2015

Delta Diablo

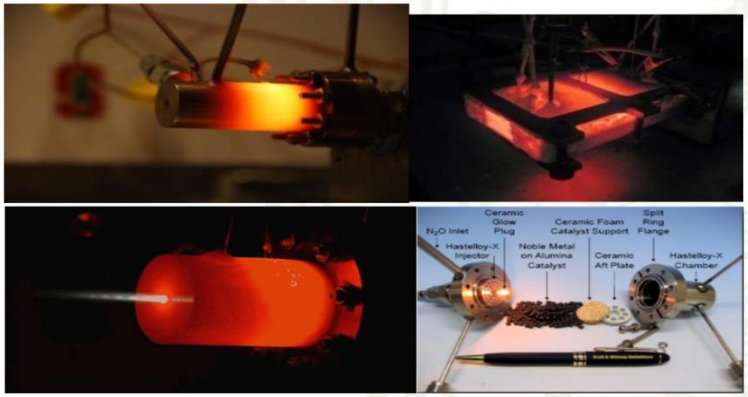
The Seed: An Innovative Idea

Yaniv Scherson

Brian Cantwell

Craig Criddle

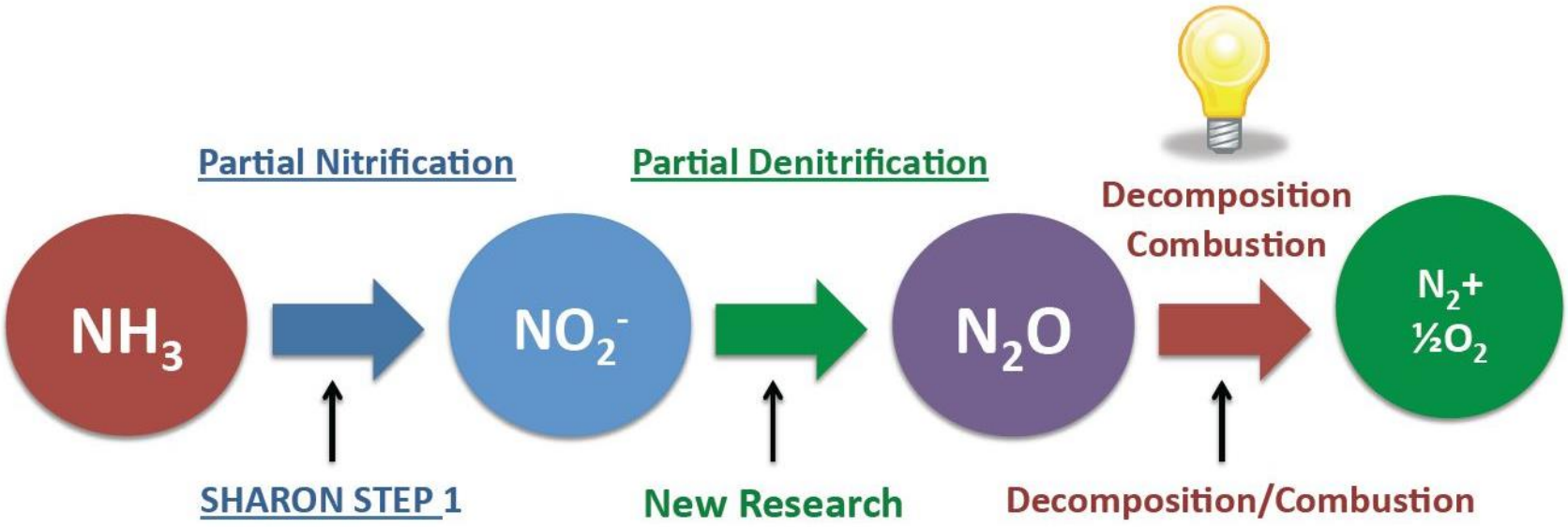
Sung-Geun Woo



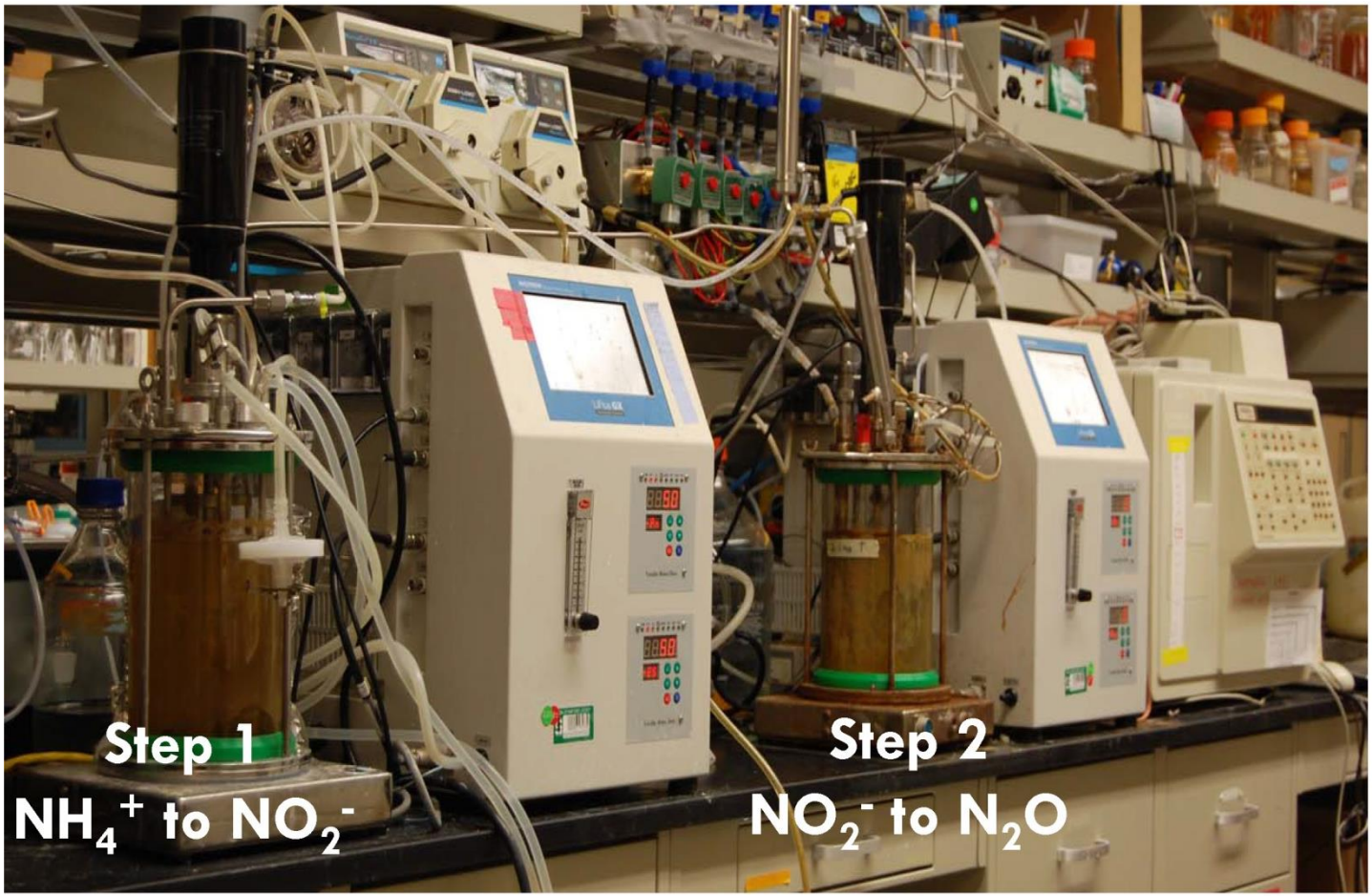
CANDO at bench-scale

CANDO

Coupled Aerobic-anoxic Nitrous Decomposition Operation



Bench-Scale, Synthetic Wastewater



Germination: Innovation Partners

Plus: Gurmukh Grewal, Jason Wong

Bench-Scale, Real Wastewater

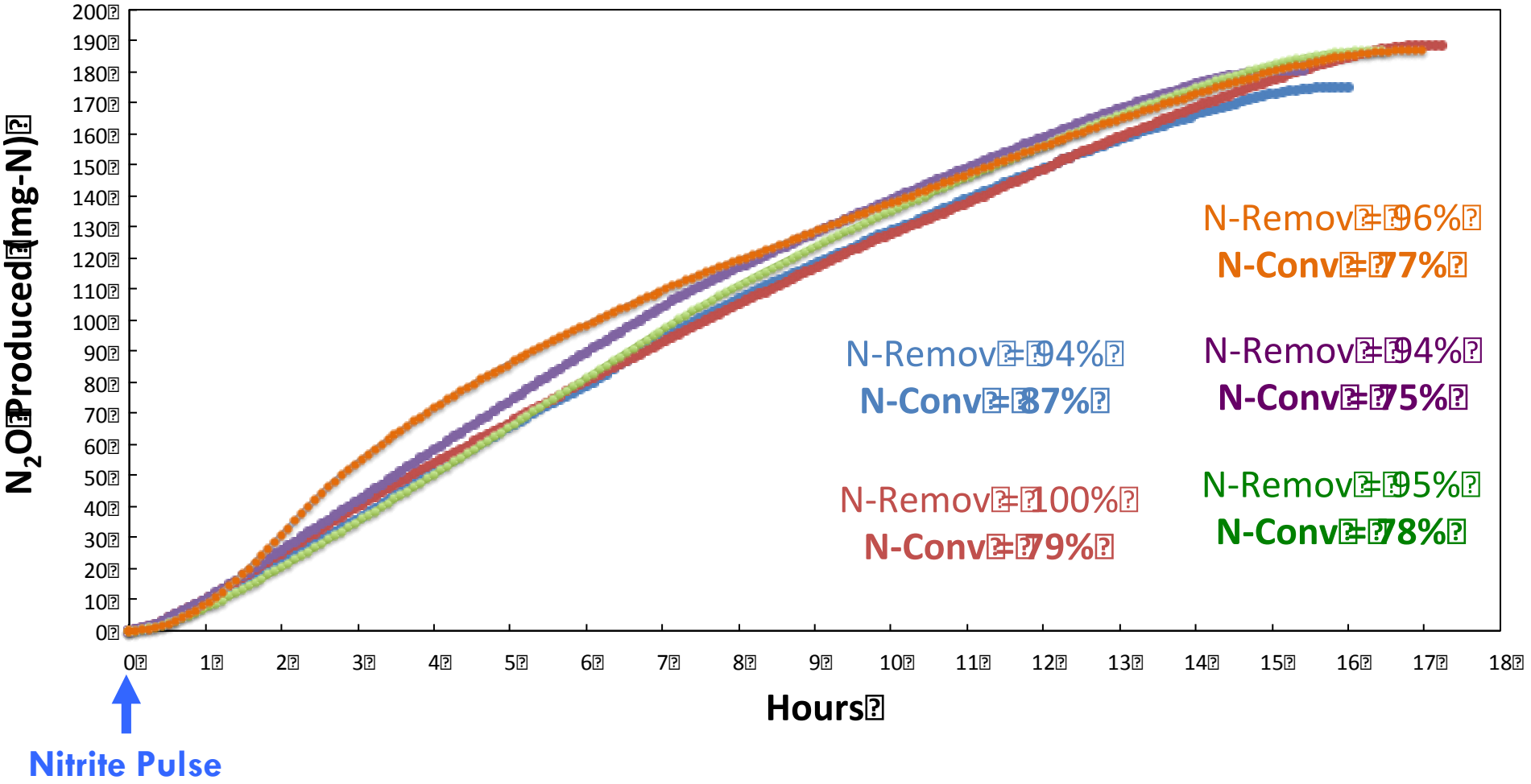
Step 1

NH_4^+ to NO_2^-

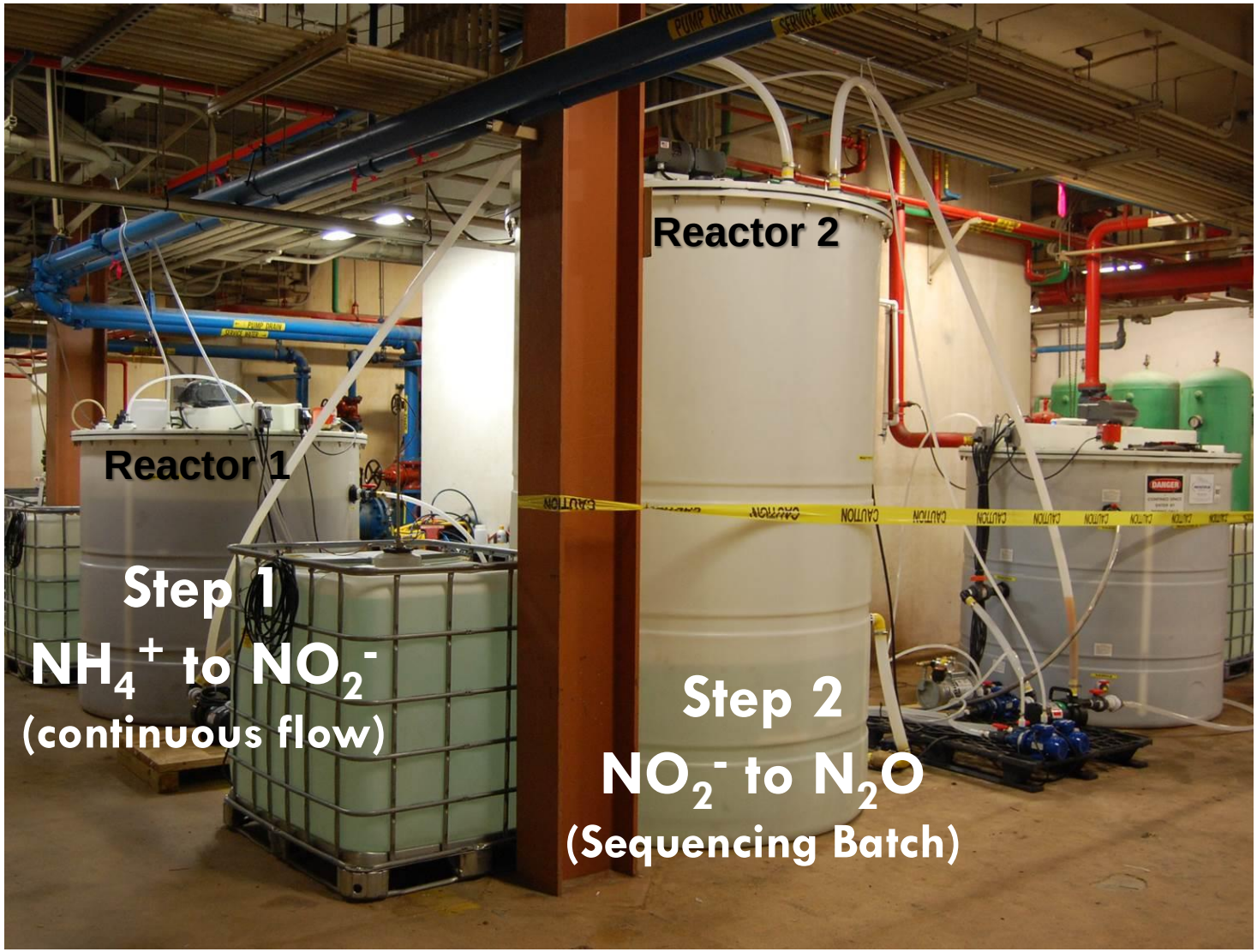
Step 2

NO_2^- to N_2O

Bench-Scale Success



Pilot-Scale, Real Wastewater



Lessons Learned

Thank You!

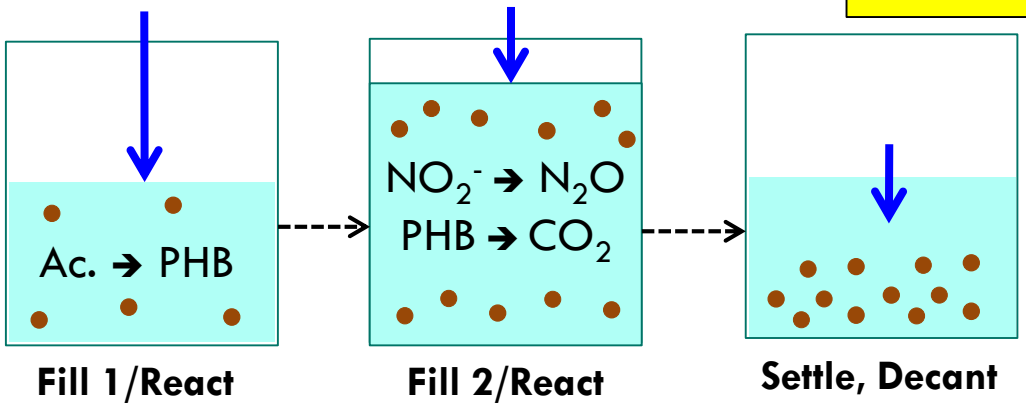

Delta
Diablo

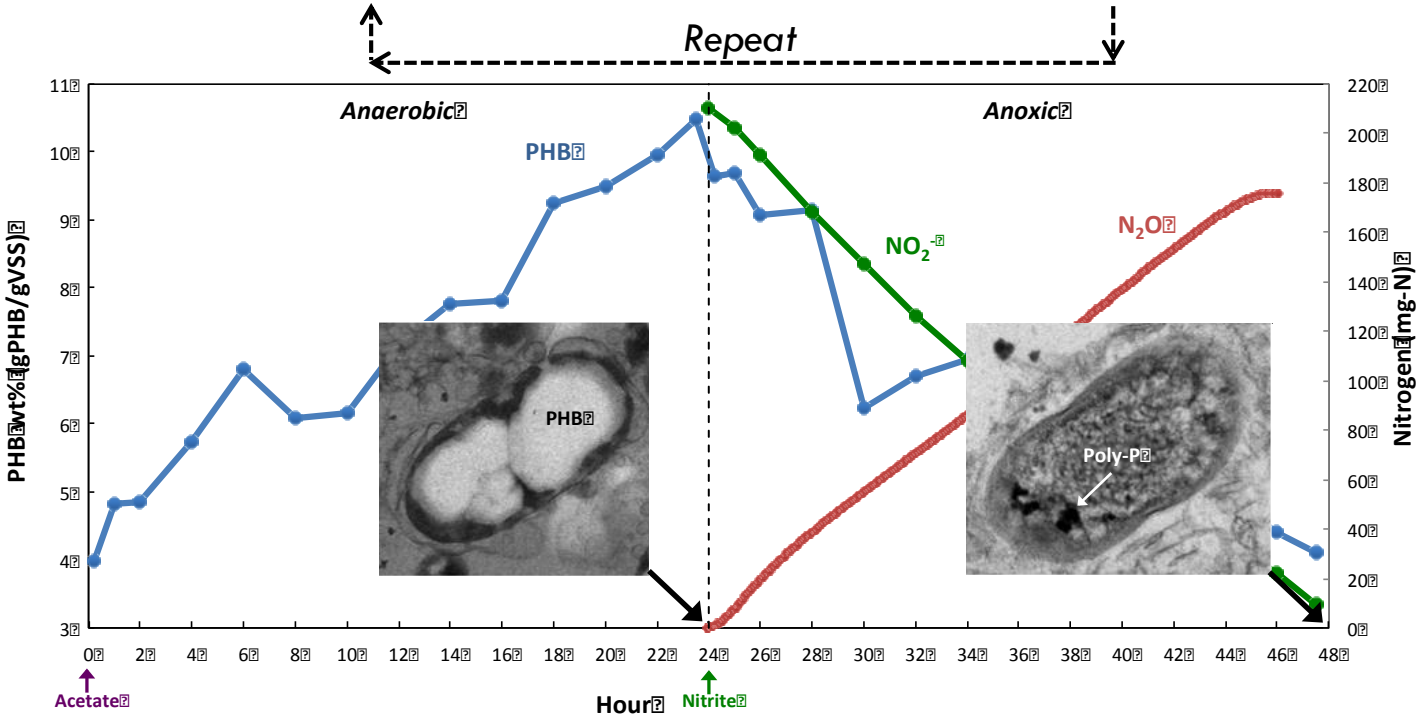

LELAND STANFORD JUNIOR UNIVERSITY
DIE LUFT DER FREIHEIT WEHT
1891

Carbon Supply: Acetate

NO_2^- Supply (Nitritation Reactor)

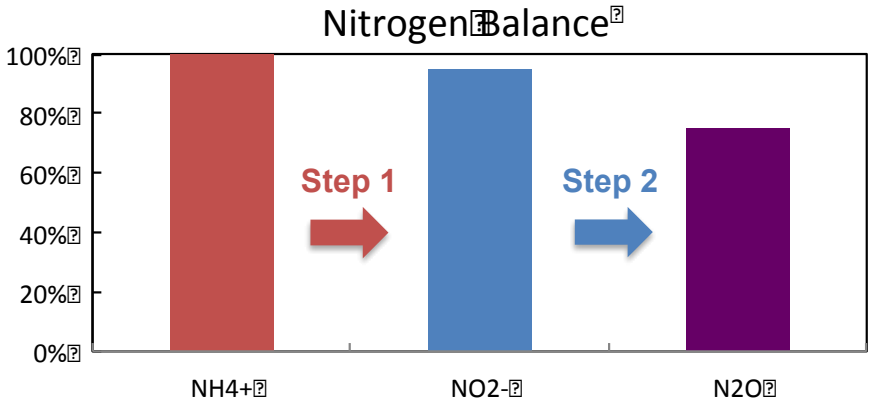
NO_2^- to N_2O Conversion(%)
NO_2^- Removal (%)





Pilot Goals

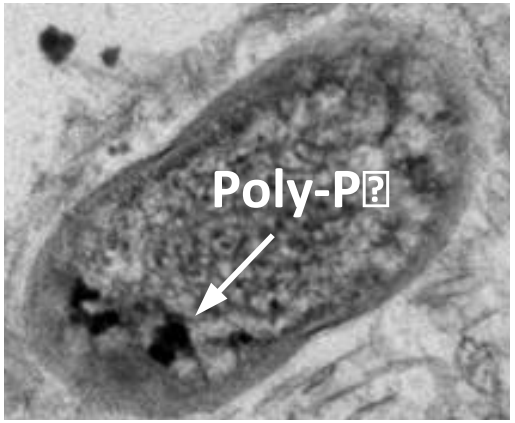
(1) Achieve at least same N-balance as bench-top



75% Conversion to N_2O

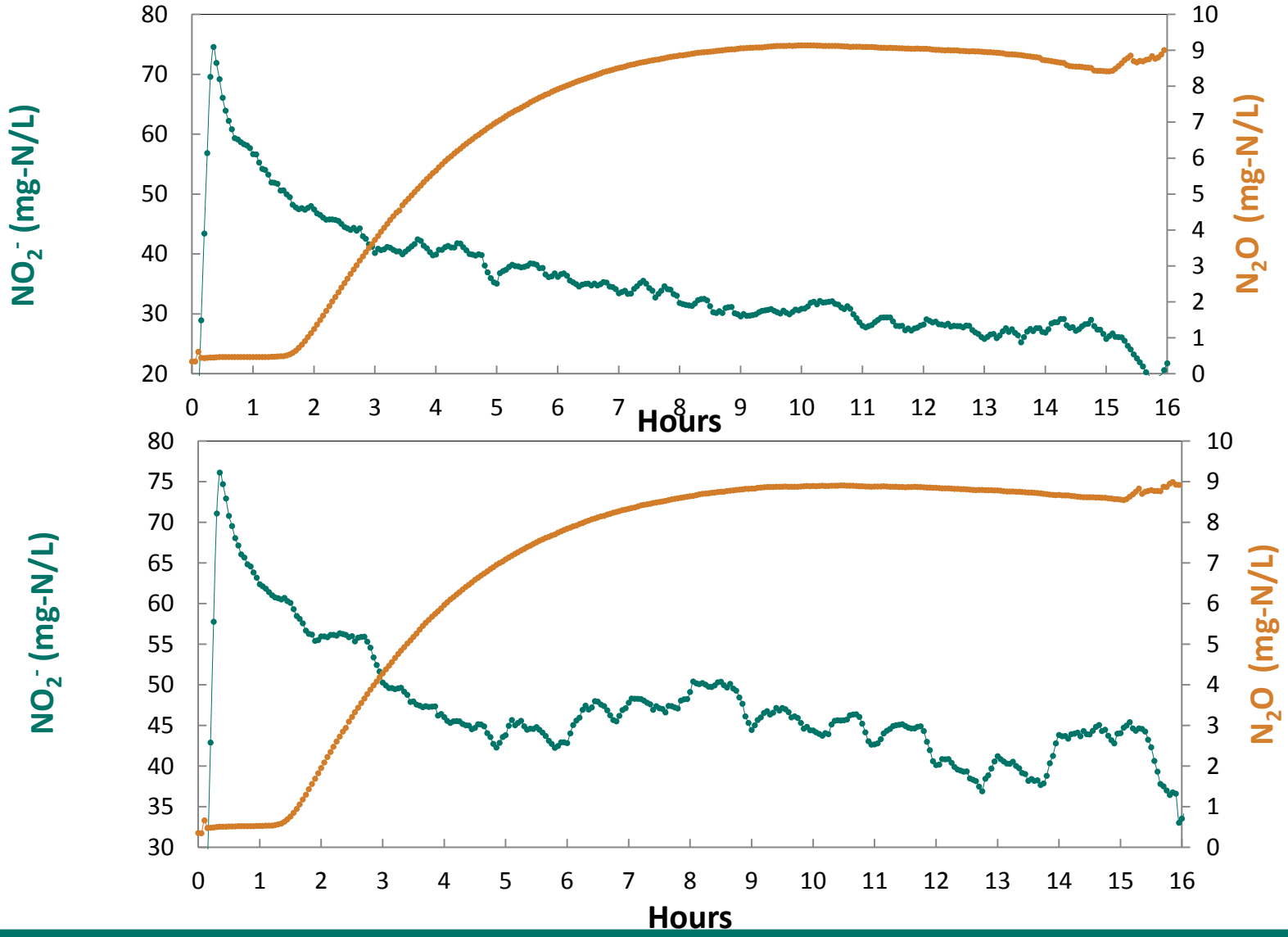
95% N-Removal

(2) Maximize P-recovery

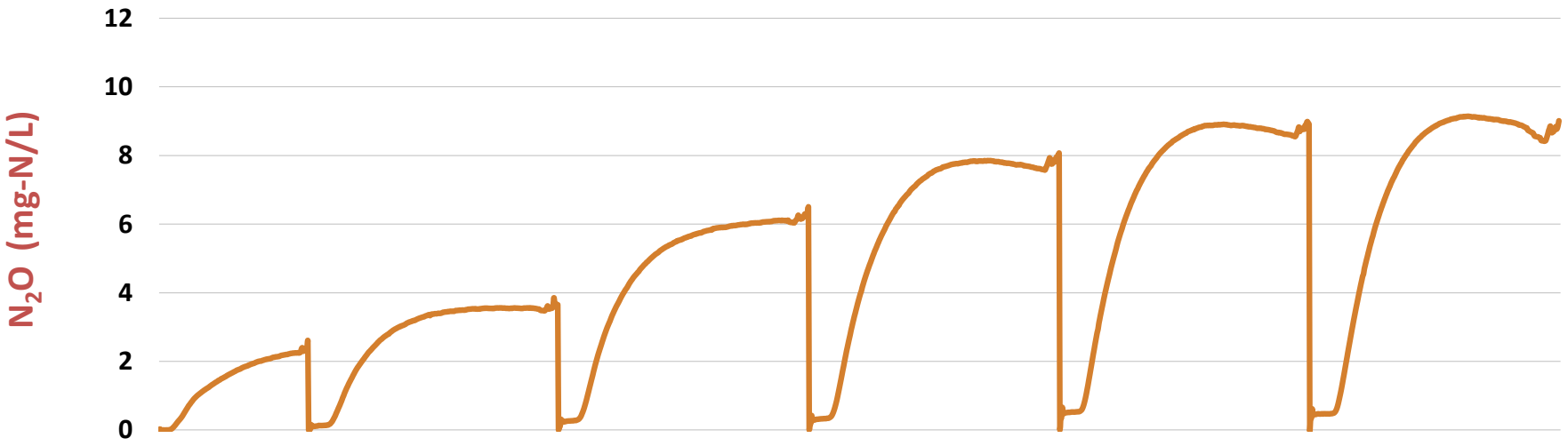


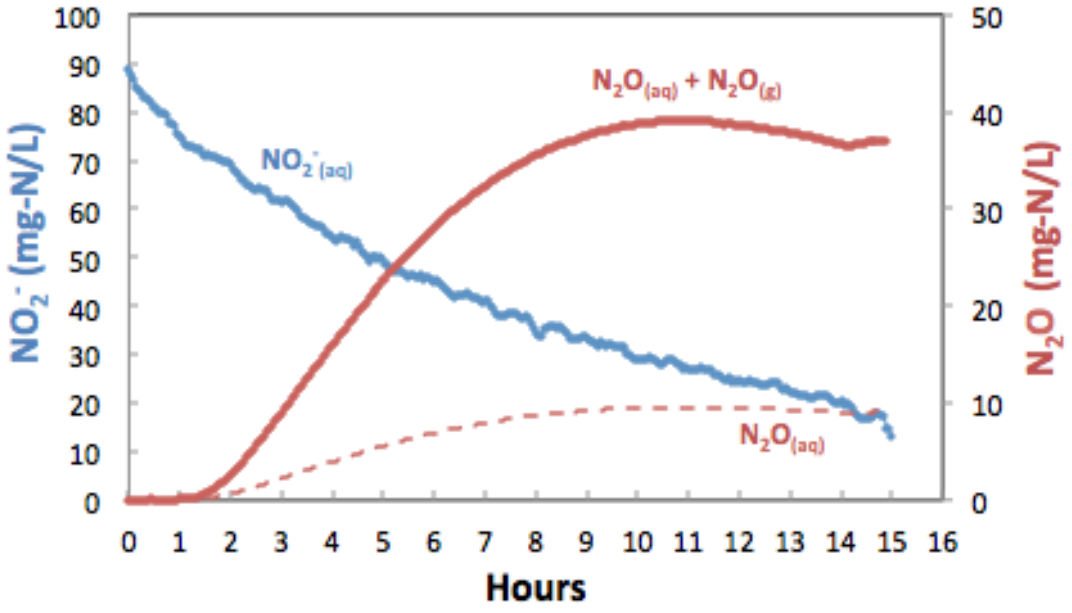
(3) Use fermented biosolids for carbon

NO_2^- to N_2O in a single cycle

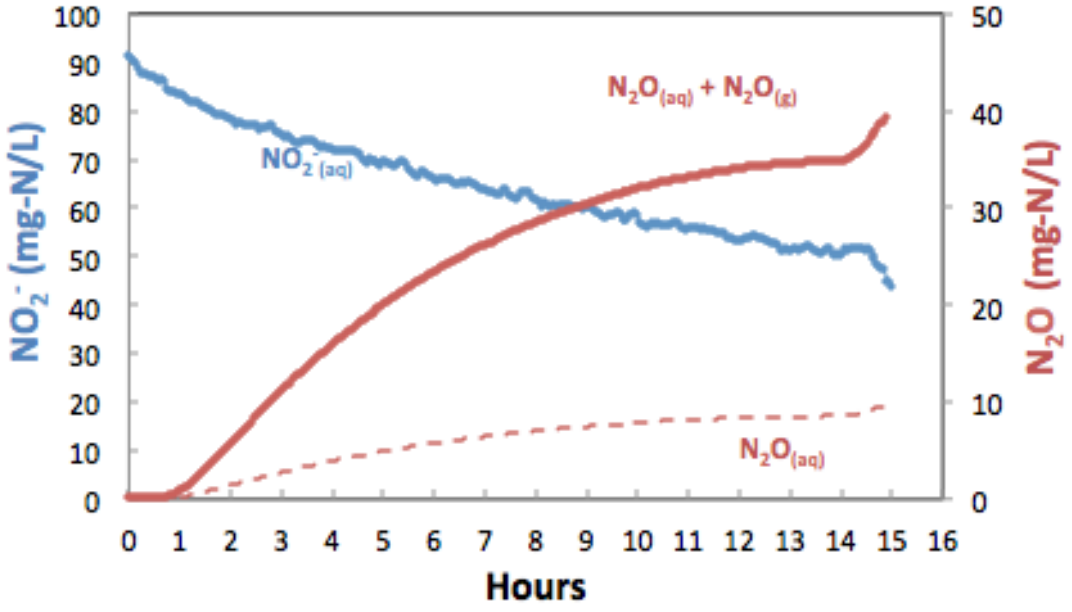


Increasing N_2O across subsequent cycles





NO_2^- to N_2O Conversion = 50%
NO_2^- Removal = 85%



NO_2^- to N_2O Conversion = 85%
NO_2^- Removal = 52%