



INLAND EMPIRE
PAPER COMPANY
Papermakers since 1911.

The logo consists of a stylized green 'IE' symbol above the company name. The text 'INLAND EMPIRE' and 'PAPER COMPANY' is in a bold, black, serif font, while 'Papermakers since 1911.' is in a smaller, italicized green font.

Company Background

- Manufacturing paper products in Millwood since 1911
- Most modern newsprint mill in the world
- Newest paper machine in North America



Company Background

- Raw materials consist mostly of waste materials
- Recently completed installation of a new system for processing waste wood chips
 - Reduced natural gas consumption by 77%
 - Reduced CO₂ emissions by 30,000 tons per year



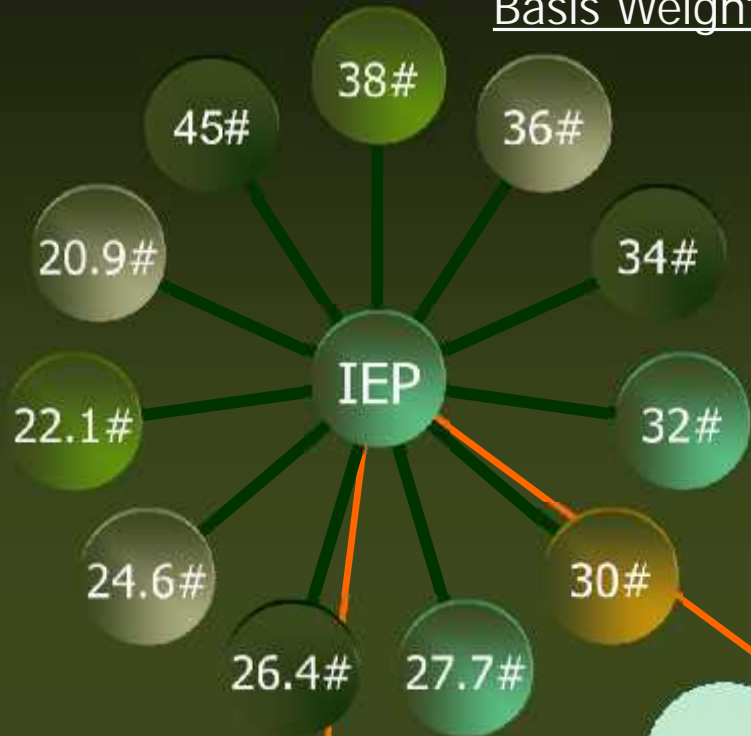
Company Background

- Integrated recycling facility installed in 1991
 - Recycle ONP, magazines and office waste
 - Paper produced at IEP can be made with up to 60% recycled materials

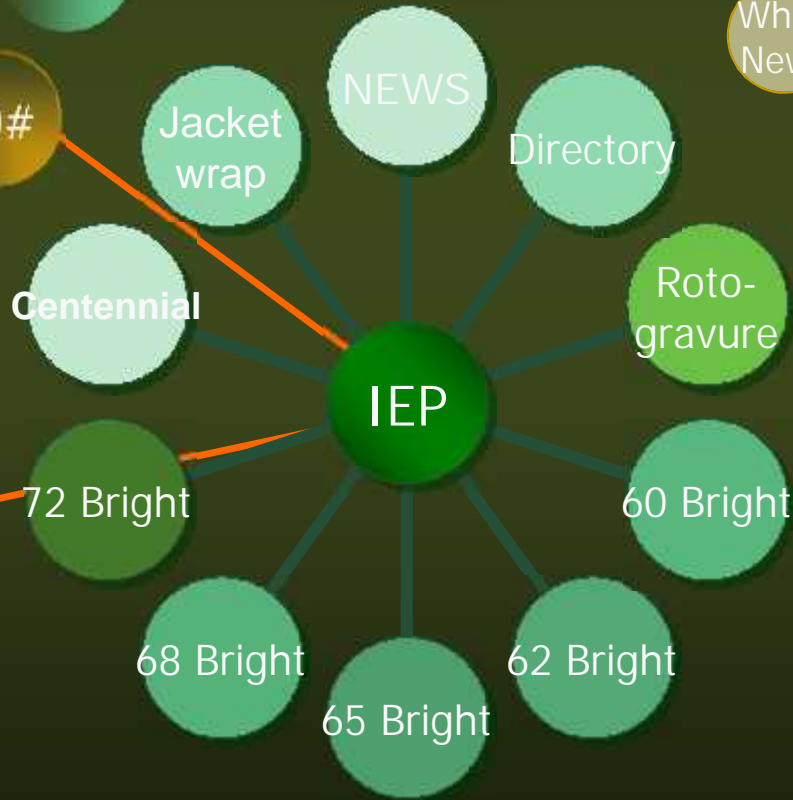


Grade Diversity

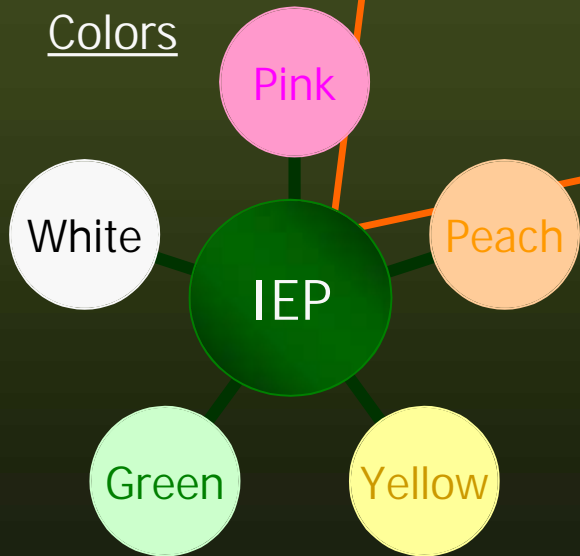
Basis Weights



Grade Types



Colors



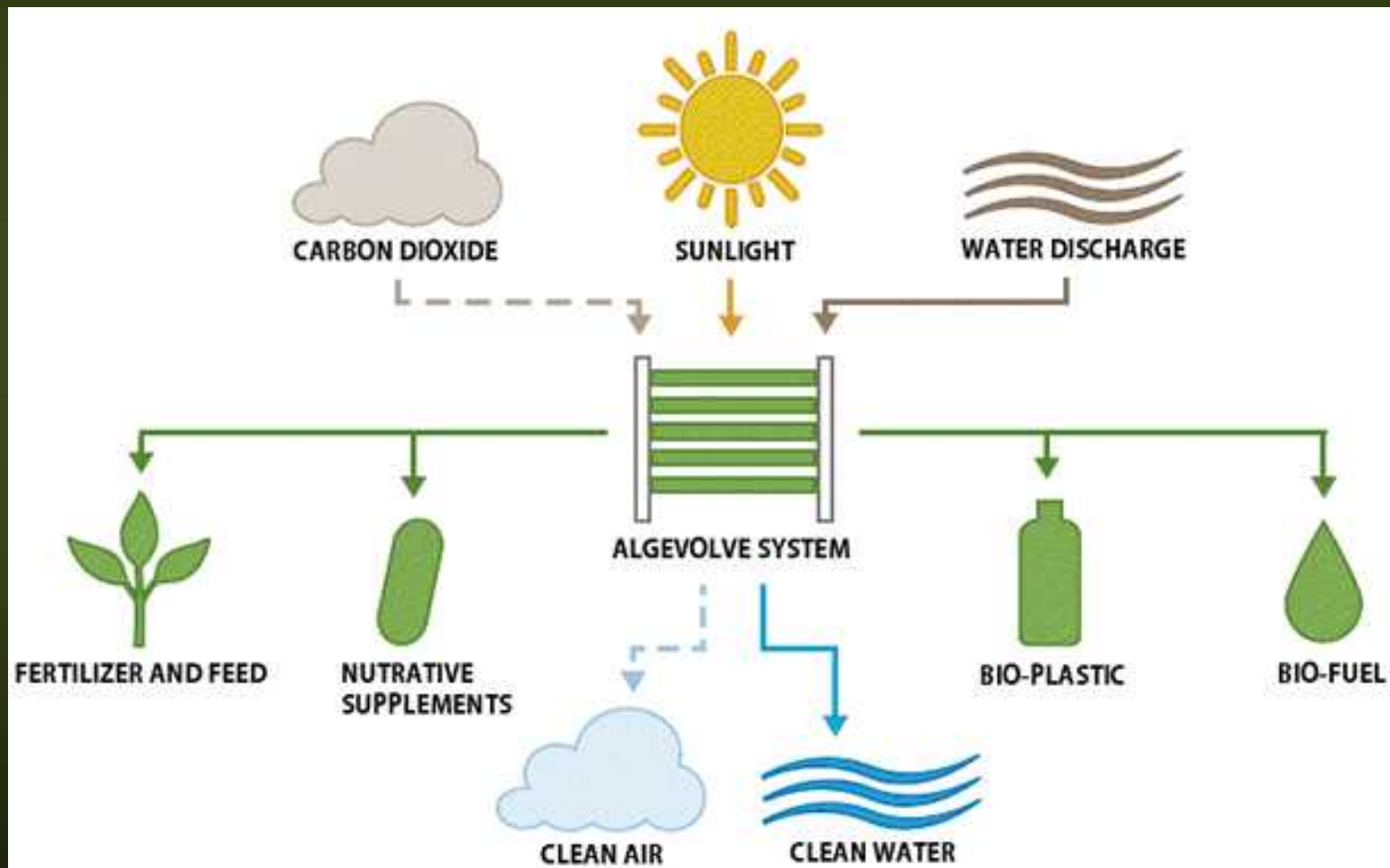
NPDES Permit/DO TMDL

Parameter	Pre-TMDL Permit (lbs./day)	DO TMDL Permit (lbs./day)	Reduction Percentage
BOD	4,536	123.2 (3 ppm)	97%
Total Phosphorus	36.4	2.39 (70 ppb)	93%
Nitrogen	N/A	24.29 (1 ppm)	

IEP's Commitment to TMDL

- Pilot tested ten phosphorus reduction technologies:
 - Blue Waters Sand Filter
 - Zenon Membrane
 - Trident HS Multi-Media Filter
 - Co-Mag Ballasted Magnetite
 - Contrafast/Trident HS
 - Trident Multi-Media Filter
 - Parkson Sand Filter
 - Actiflo Ballasted Sand
 - Co-Mag/Trident HS
 - AlgEvolve

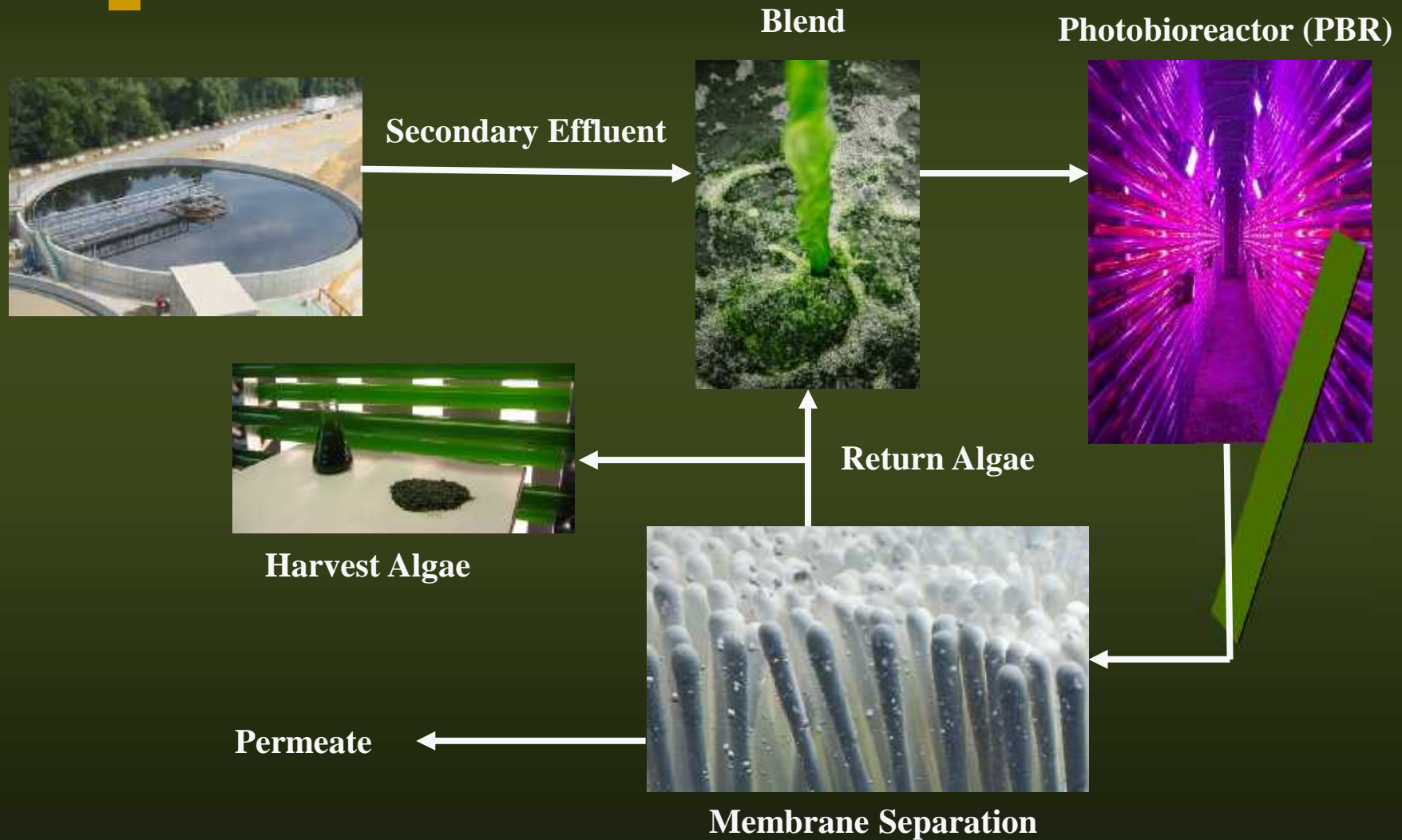
Algae-based Nutrient Removal



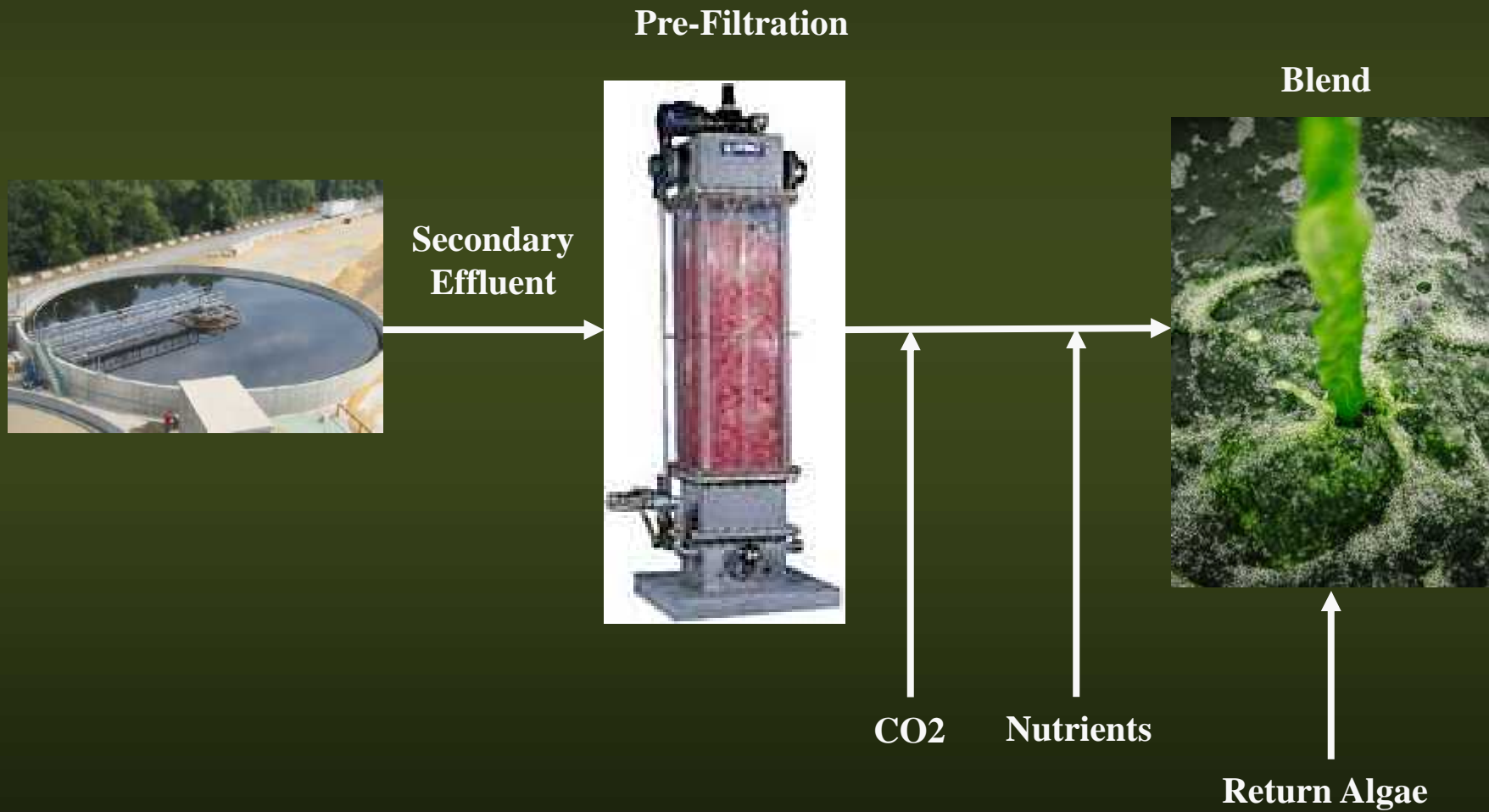
IEP Demo system



Process Flow



Secondary to Blend



Photobioreactor (PBR)

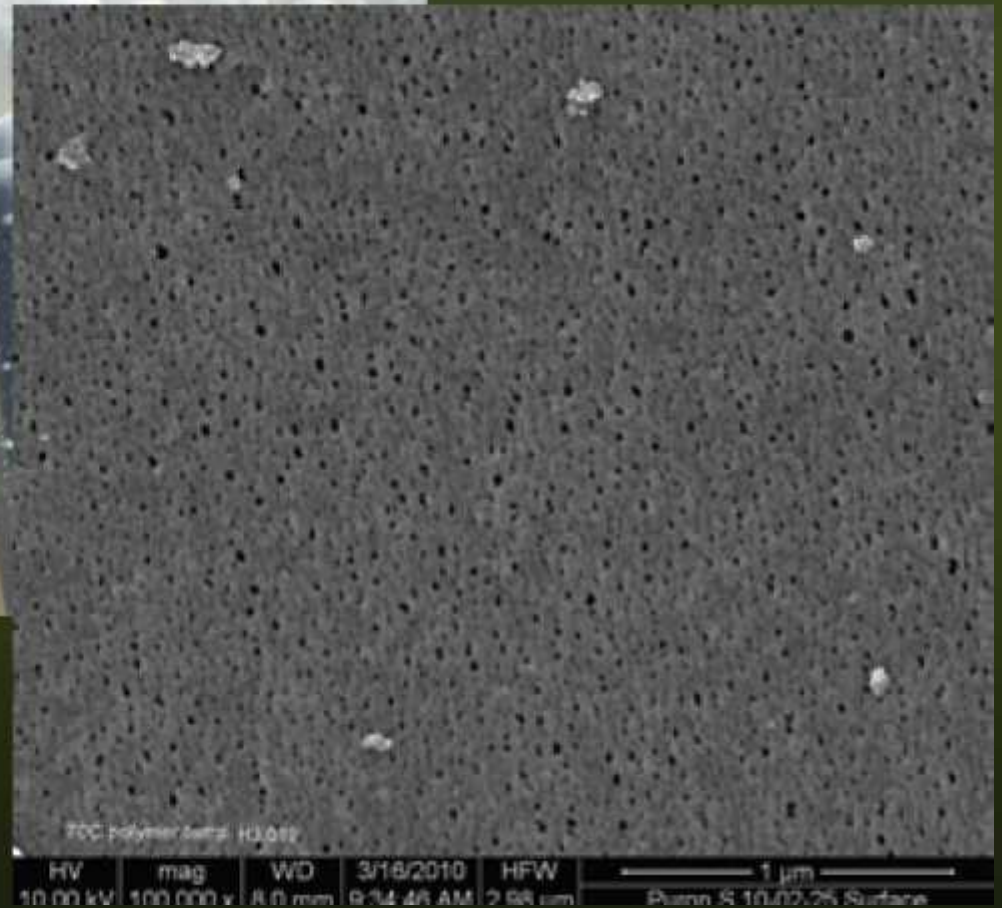
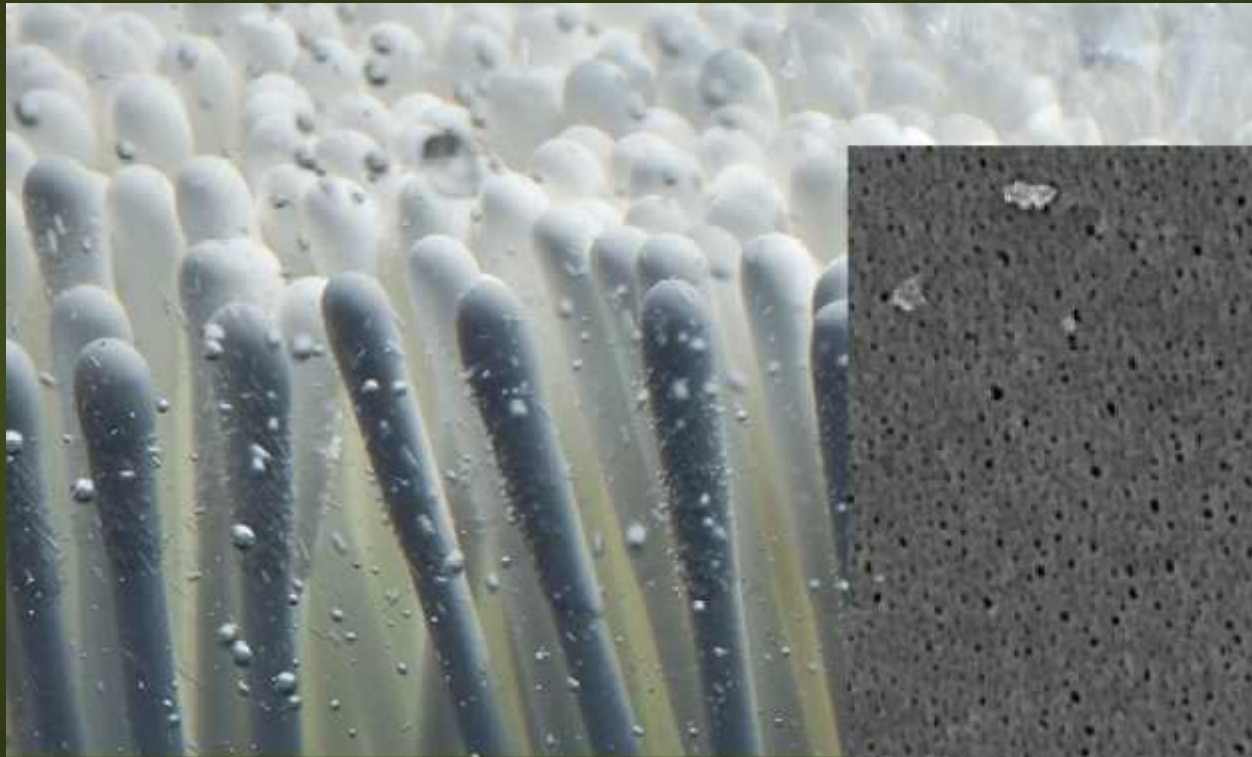


Blend



Membrane Separation

Koch – Puron Membranes



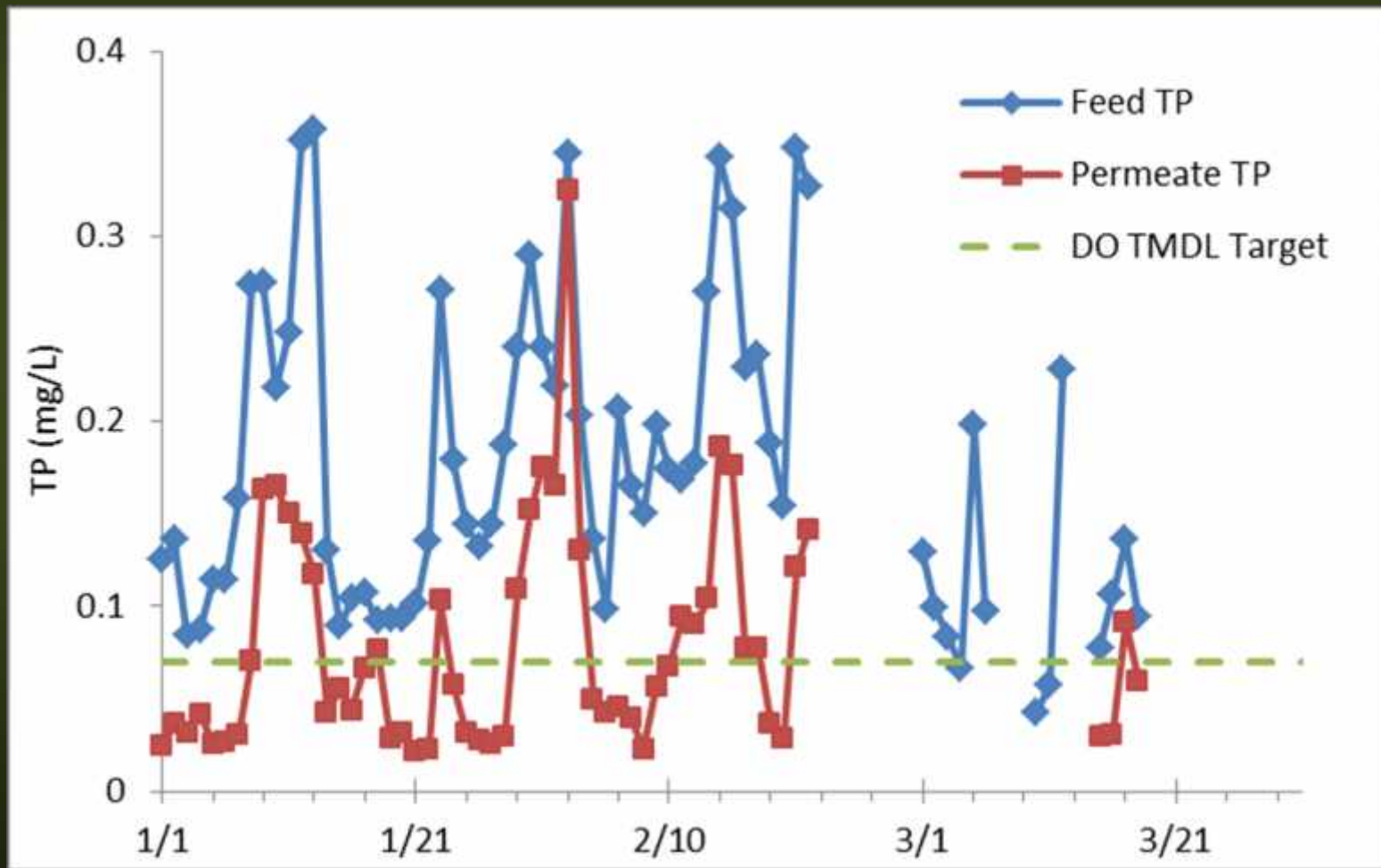
HARVEST



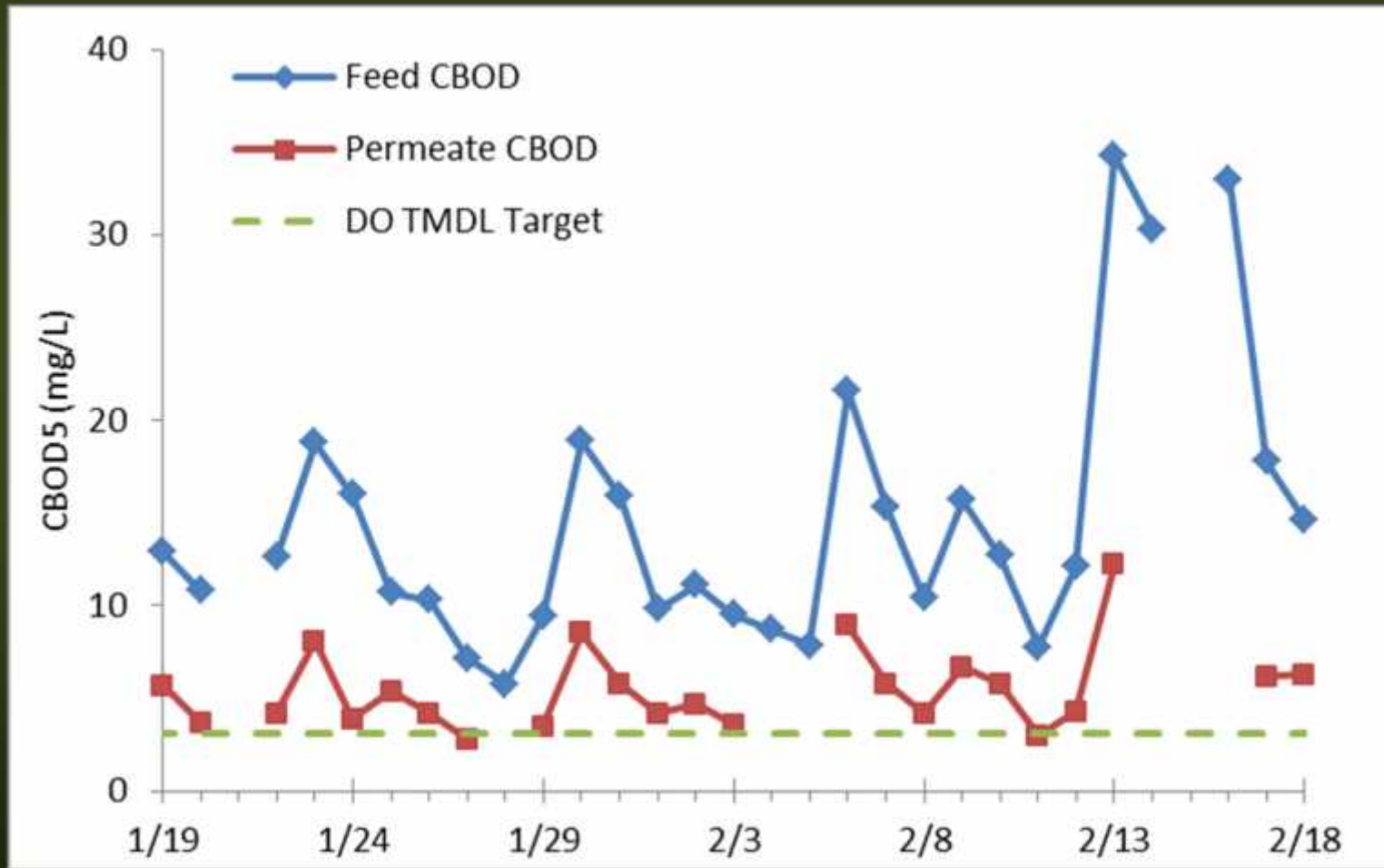
Biological vs. Chemical

- Advantages of Algae-based Process over Chemical:
 - Not a chemically intensive process
 - CO₂ Sequestration
 - Produces pure oxygen as a by-product
 - Produces algae as a commodity by-product
 - Low energy
 - May provide additional benefits such as PCB removal

TP Performance



CBOD Performance



Environmental Stewardship

Innovation

Commitment to our community

