IL Nutrient Loss Reduction Strategy 2021 Biennial Report: Point Source Perspectives

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2021 NLRS Partnership Conference November 10, 2021





Reflections: Illinois Association of Wastewater Agencies (IAWA)







Tracking Progress



NUTRIENT LOSS REDUCTION STRATEGY



- Cost of Biological P Removal (Bio-P)
 - Capital improvements
 - Other unplanned costs







Fox Metro- \$98M





- Backup chemical P removal systems
 - MWRDGC Stickney WRP: in addition to Bio-P and nutrient recovery (Ostara Pearl)
 - North Shore WRD: 2 facilities planned ~\$4M





Highlights

 Watershed groups: Membership cost
 Staffing for optimization, pilots, research, etc.

MWRDGC Calumet WRP: Bio-P Pilot Image: Colored Colo







Highlights

- IL Assoc. of Wastewater Agencies (IAWA)
 - P removal workshops
 - Quarterly technical conferences
 - Watershed groups
- IL Water Environment Association
 Annual P Removal Conference
- Collaboration with IL Farm Bureau
 Field days Fulton Co. site



IWEA Nutrient Removal Conference









✤ Bio-P

- Fluctuating conditions
 - Flows (wide wet & dry variations): e.g.
 MWRDGC Stickney plant
 - ✓ P loads: e.g. North Shore WRD
- Impact other processes: e.g.
 - Dewatering of solids
 - Decreased total solids in effluent

MWRDGC - Stickney WRP







✤ Bio-P

- Easier for smaller plants
- Low influent carbon
- Potential unintended consequences;
 e.g. nitrification/N removal

Big plant – Big problems



REDUCTION STRATEGY

Urbana-Champaign SD BOD & N removal





✤ Bio-P

- Relatively new process: Learning curve for staff
- Learn to operate without chemical backup: e.g. Fox River WRD
- New facilities: Opportunities for flexibility/resiliency: e.g. Kishwaukee WRD
- Optimization plans: Some additional N removal as plans are implemented





P Discharge from Point Sources (million pounds)



ILLINOIS NUTRIENT LOSS REDUCTION STRATEGY





As more plants implement Bio-P some additional N reduction

- More P reductions as permits are activated over the next 3 years esp. large plants
 - MWRDGC: O'Brien and Calumet WRPs



Summary

High capital and O&M costs, including unplanned costs

- Outreach significant via workshops and watershed groups
- Bio-P challenging no one size fits all; some need chemical P backup
- Point source making significant progress on P reduction
- Funding Need more in SRF





- Rick Manner: Urbana-Champaign Sanitary District
- Brian Johnson: Peoria Sanitary District
- Mike Holland: Kishwaukee Water Reclamation District
- Amy Underwood: Downers Grove Sanitary District
- Charles Bodden: North Shore Water Reclamation District
- Tim Rubis: Fox Metro Water Reclamation District
- Joe Kozak and Cindy Qin: MWRDGC



Thank You

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