PHOSPHOROUS RECOVERY FROM WASTEWATER: CURRENT PRACTICES AND FUTURE OPPORTUNITIES

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Phosphorous recovery as struvite from biosolids and digestate sidestreams has been gaining popularity at water resource recovery facilities (WRRFs) in North America. Struvite contains both phosphorus and nitrogen and is a slow-release environmentally- friendly fertilizer. This practice offers many benefits including resource recovery, production of a marketable end product, minimization of struvite scaling in the WRRF, improvements in biosolids dewaterability, and reduction of the nutrient content, primarily phosphorous content of treated biosolids.

In North America, phosphorus land application regulations are becoming increasingly stringent in order to mitigate eutrophication. Extractive phosphorous recovery at WRRF's can reduce recycle loads, achieve chemical and energy savings, and promote overall sustainability. While struvite crystallization is the most commonly used approach for P recovery, other proven technologies are available and, as interest in nutrient recovery grows, competing processes are beginning to enter the marketplace.

It is important to recognize that technology is not the barrier to extractive nutrient recovery becoming a standard practice at WRRFs. Rather, it is the lack of a socio-technological methodology to select and implement the most sustainable solutions based on local factors. Key to a successful project is sustained stakeholder engagement involving customers and community members, regulatory and legislative staff, media representatives, environmental advocacy groups, and water industry professionals.

This presentation will provide an overview of the types of phosphorous recovery systems being used in modern WRRF's as well as provide information on developing phosphorous recovery technologies and their implementation.

PRESENTER BIO: Todd Williams is a professional engineer with 40 years of experience in the wastewater industry. Todd is a recognized biosolids management planning expert having supported dozens of biosolids management plans in his career. Todd currently serves as Jacobs Residuals Resource Recovery Global Technology Leader assisting wastewater clients throughout North America.