

**Unified Government of Wyandotte County and Kansas City, Kansas**

# **Wolcott Wastewater Treatment Plant**

**9407 Main Street, Kansas City, KS 66109**

The Wolcott Wastewater Treatment Plant (WWTP) replacement will prepare the Unified Government of Wyandotte County and Kansas City, Kansas (UG) to handle future population growth while improving effluent water quality for the region. Once constructed, this facility will be one of the earliest examples of an innovative biological nutrient removal technology in the U.S., known as aerobic granular sludge (AGS) – the first of its kind in the State of Kansas.



# PROJECT BACKGROUND

The purpose of the Project is to replace the existing Wolcott WWTP to address future population growth, handle peak flow events, and improve the effluent quality for compliance with the phased implementation of the Kansas River total maximum daily load (TMDL) and more stringent permit requirements. This same HDR team has assisted UG with the completion of an Antidegradation Review to obtain regulatory approval for expanding the Wolcott WWTP.

The Wolcott WWTP will be constructed in phases. A 2-MGD average daily flow (ADF) facility was initially constructed. Improvements were designed to readily accommodate an expansion to 4-MGD ADF within approximately 10 years. It is anticipated the ultimate capacity can reach as much as 18-MGD ADF at buildout. The initial plant improvements have the capacity to treat the current average day flows, from both the existing Wolcott WWTP and Pump Station 50 service areas, and the projected growth likely to occur within the next several years.

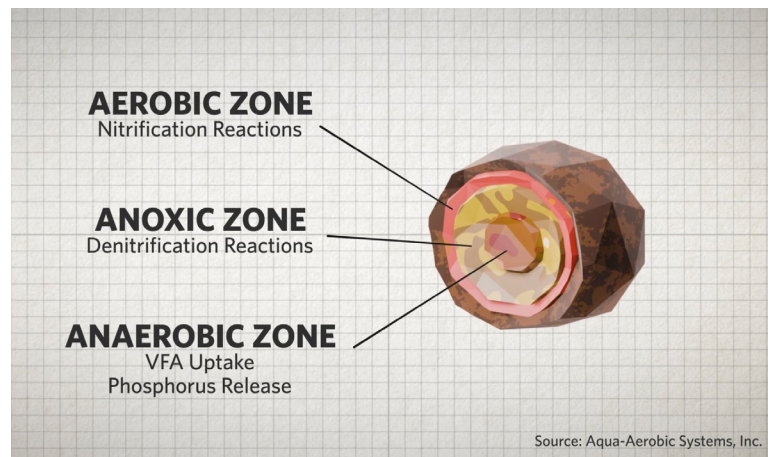
The new plant was constructed using Construction Manager At Risk ("CMAR") method of project delivery. HDR completed final design of the new facility in spring of 2020. It was placed into service in November of 2021. During Preliminary Design Workshops, HDR completed a conceptual evaluation of biological nutrient removal (BNR) treatment technologies, which resulted in the selection of AGS as the preferred technology by UG. As part of the innovative design and based on feedback from UG operations staff, the treatment train includes a contiguous structure to house the headworks, AGS basins, tertiary filtration and solids thickening facilities enabling efficient operational checks and resulting in a reduced site footprint.

# FREQUENTLY ASKED QUESTIONS

## Q: What is the AGS process?

A: The AGS technology is an innovative wastewater treatment technology that provides advanced biological treatment using unique features of an aerobic granular biomass in lieu of separate discrete treatment zones as shown in **Figure 1**. The process features of the AquaNereda® technology translate into a robust treatment scheme within a compact footprint.

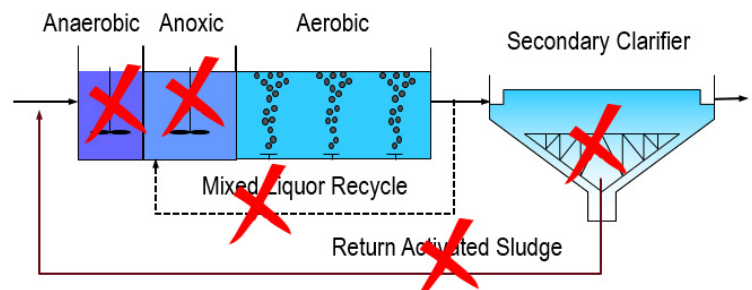
Figure 1



## Q: Why did UG select this process?

A: Drivers for selection of the AGS process for the Wolcott WWTF included a reduced site footprint, less complex operations as a result of unit processes elimination and capital and O&M cost savings as shown in **Figure 2**. Additionally, the robust nature of the aerobic granule treatment technology provides increased system biomass and additional resiliency compared to a traditional floc.

Figure 2



# PROJECT DETAILS

## Owner:

Unified Government of Wyandotte County and Kansas City, Kansas (UG WYCO/KCK)

## Project:

Wolcott Wastewater Treatment Plant

## Engineer:

HDR

## Date in Service:

November 2021

## Phase 1 Capacity:

2.0 MGD ADF/6.0 MGD PDF

## Process:

- AquaNereda
- Aerobic Granular Sludge
- Aqua Aerobic Systems Inc.

## Other Unit Processes:

- 6 mm perforated fine screening
- Stacked tray grit removal
- Cloth media filtration
- UV disinfection
- Sludge stabilization and thickening

## Site Considerations:

- Floodplain
- Area for expansion
- Unsuitable soils

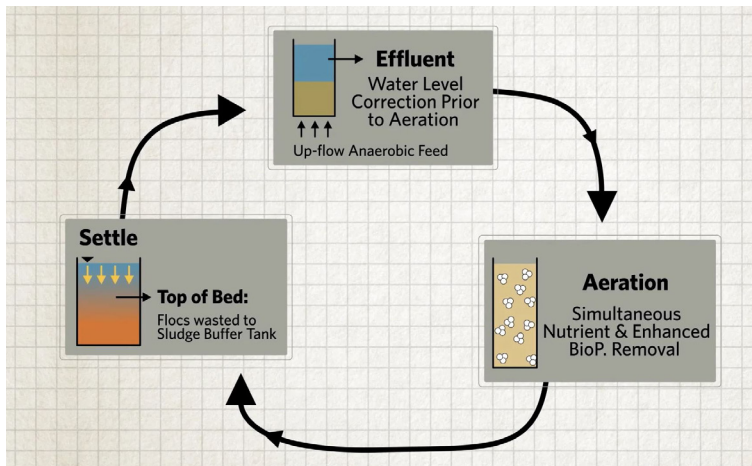
## Other Considerations:

- Proprietary Process
- Footprint
- Staffing
- Process controls
- Hydraulic constraints

## Q: What makes AGS different?

**A:** The AGS process eliminates the need for separate clarification, return activated sludge (RAS) pumping, and BNR treatment zones and combines those functions into a single basin operating on a cycle basis using the aerobic granular biomass as shown in **Figure 3**. These aspects result in a compact footprint as compared to other treatment technologies and provides superior settling characteristics compared to a traditional floc, resulting in a life cycle savings of \$5-\$10 million as compared to other technologies evaluated.

Figure 3



## Q: What operational considerations should I be aware of?

**A:** The AGS process requires 6 mm perforated type fine screening when not used in conjunction with primary treatment. The AGS process also relies on the use of various process instrumentation for optimization of the treatment system.

## FOR MORE INFORMATION:



### QR CODE

Wolcott Landing Page  
HDR Website



### Joe Barnes

Unified Government of  
Wyandotte County and  
Kansas City, Kansas  
50 Market Street  
Kansas City, KS 66118  
913.573.1353 (Office)  
913.232.6002 (Mobile)  
jbarnes@wycokck.org



### Brandon Coleman, PE

HDR  
10450 Holmes Road, ste 600  
Kansas City, MO 64131  
816.347.1125 (Office)  
816.304.1484 (Mobile)  
brandon.coleman@hdrinc.com



### Jared Keating

Garney Construction  
1700 Swift Street, ste 200  
North Kansas City, MO 64116  
913.515.4982 (Mobile)  
jkeating@garney.com

10450 Holmes Road, Suite 600  
Kansas City, MO 64131-3471  
816.360.2700

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The Wolcott WWTP is another significant step forward for the UG to address future growth and regulatory drivers within the service area in an environmental and fiscally responsible manner.

