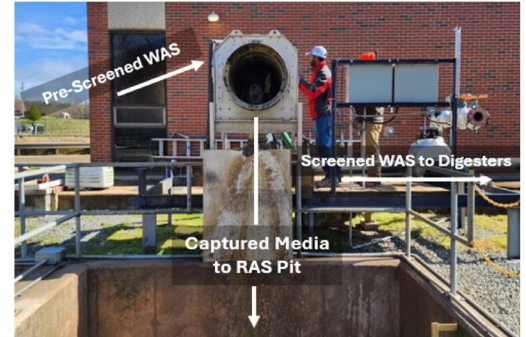


THE CHALLENGE:

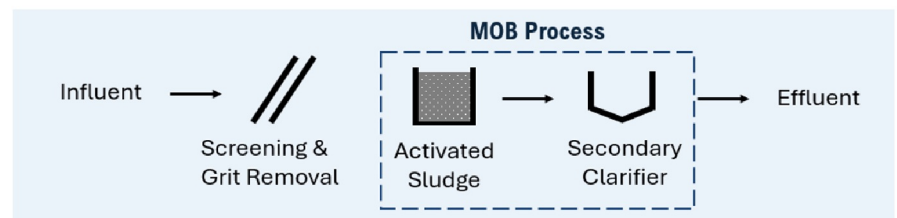
After a series of process adjustments that fell short of expectations, the Mebane, NC Water Resource Recovery Facility (WRRF) continued to face nutrient removal instability. Achieving reliable nitrogen treatment had been a long-standing goal for Mebane, particularly with future nutrient limits looming. Upgrades such as online instrumentation, on/off timers for the aerators, and chemical coagulation brought Mebane closer to their treatment goals, but periods of instability persisted, leaving operators seeking a permanent and robust solution.



FACILITY OVERVIEW:

| | |
|----------------|-----------------------------------------------------------------------------------------------------------|
| Facility Flows | 1.5 - 1.8 MGD Average Flow (5.7 - 6.8 MLD) |
| Effluent Goals | <ul style="list-style-type: none"> Ammonia: 2.0 mg/L TN: 5.3 mg/L |
| Project Goals | <ul style="list-style-type: none"> Enhance Nutrient Removal Improve Settleability |

PROCESS FLOW:



WHY THE MOB PROCESS WAS CHOSEN:

Mebane WRRF adopted the Mobile Organic Biofilm (MOB) Process to stabilize nutrient removal and improve secondary sludge settleability. The facility was a natural candidate for full-scale implementation of the MOB Process, having been one of Nuvoda's earliest proponents and having used MOB media as a settling aid since 2011. With nearly a decade of hands-on experience, Mebane's operators were already well acquainted with the technology's benefits and confident in what it could deliver. The MOB Process was ultimately chosen for its resilience under variable loadings and its proven ability to enhance nutrient removal, particularly to stabilize nitrogen treatment.

At its core, the MOB Process transforms a conventional activated sludge system into a hybrid process in which slow-growing organisms reside within the biofilm. This allows for reduced solids retention time (SRT) and the associated suspended growth biomass inventory, resulting in lower and stable SVIs. Once the MOB Process was permanently online, clarifier performance quickly reached its strongest point in years while the site saw reliable ammonia and TN removal. The Mebane WRRF is the longest-running MOB Process site to date, having used some version of the MOB Process technology for nearly 15 years and counting.

WHAT WAS ACHIEVED:

- Stabilized, nitrogen removal, even in winter months: Average NH3 < 1.0 mg/L
Average TN < 5.0 mg/L
- Lowered monthly average SVI by over 50 mL/g
- Prevention of solids washout during high-flow events
- Retrofit installation without facility downtime

WHAT THE MOB PROCESS CAN DO FOR YOU:

- Increased Clarifier Capacity
- Stabilized Settling Performance
- High Loading Process Stability
- Full-Scale Demonstrations and Retrofits

