



## BNR COMPLIANCE

### THE CONCERN OVER BNR

Biological Nutrient Removal (BNR) compliance is expected to be the most significant challenge facing wastewater permittees for years to come.

Until now, compliance was a challenge made more difficult by the inherent deficiencies of the most widely used BNR processes, which are unable to quickly and cost-effectively meet increasingly stringent compliance mandates.

Fortunately, In-Pipe Technology® Company has a proven BNR approach that will help you meet new compliance standards quickly and cost-effectively.

### IN-PIPE TECHNOLOGY'S BNR SOLUTIONS

In-Pipe Technology enables you to achieve BNR compliance by transforming your existing collection system into a vast, biological pre-treatment reactor. Through a patented sewer biofilm conversion process, In-Pipe Technology reduces the nitrogen and ortho-phosphorus concentrations entering your plant and breaks down difficult-to-degrade organics into readily biodegradable material for improved denitrification and/or phosphorus release in your BNR facility.

In addition, In-Pipe Technology significantly increases the quantity of facultative bacteria entering the treatment plant. These bacteria actually contribute to the BNR process, unlike strict anaerobes that dominate typical domestic wastewater.

### COMPETITIVE EXCLUSION

The biological principle of "competitive exclusion" is fundamental to the numerous, documented benefits of In-Pipe Technology. Beneficial bacteria are added continually, enabling them to outcompete the indigenous, damaging bacteria for available nutrients and food, ultimately dominating the wastewater and sewer biofilm.

The result is a stable, highly active, synergistic influent bacterial composition, as well as reduced nutrient loading

and increased wastewater biodegradability. This combination is a perfect enhancement to any existing BNR process, improving performance and treatment plant capacity.

### IN-PIPE'S BNR BENEFITS

The benefits are proven and substantial:

- **Quick implementation and results**
- **Influent TKN load reduced by as much as 25%**
- **Nitrification improvement of up to 50% or more**
- **Year-round nitrification and denitrification, including cold water winter treatment**
- **Reduced or eliminated need for supplemental carbon addition**
- **FOG and odor control in your collection system and treatment plant**
- **No new capital expense and lower operating costs**

By leveraging your existing plant and collection system infrastructure, and with reductions in operations and maintenance costs, In-Pipe Technology enables you to quickly achieve BNR compliance, with significant improvement in less than three months.

### THE IN-PIPE TECHNOLOGY ANSWER

Only with In-Pipe Technology can you meet BNR compliance standards *while you also* eliminate odors, increase plant capacity, limit corrosion, control FOG and reduce sludge production, all at no additional cost.

To speak with one of our experienced wastewater professionals about how In-Pipe Technology can deliver results for you, please call 1.888.325.5033 ext. 229, email us at [BNR@in-pipe.com](mailto:BNR@in-pipe.com) or visit [in-pipe.com](http://in-pipe.com).

#### **A RISK-FREE SOLUTION – INQUIRE ABOUT OUR NO NET COST GUARANTEE**

**With our no net cost guarantee, you will never have a negative return on investment. If operating cost savings are less than our service fee, we will refund the difference. You can only save money with In-Pipe Technology; you can never lose it.**

REAL SCIENCE. REAL RESULTS.

**3-YEAR COMPOSITE DATA  
MONTHLY MEANS WITH 95% CONFIDENCE INTERVALS**

