

A photograph of a water treatment facility. In the foreground, a worker wearing a white hard hat and a blue long-sleeved shirt with a yellow safety vest is looking towards the right. In the background, there are several large rectangular filtration tanks with metal railings. A white arrow points from the worker towards the tanks. The scene is set outdoors with trees and a clear sky in the background.

# FILTRATION

technologies for cleaner water

FEATURING



PILE CLOTH  
FILTER





**MEET THE**



Centra-flo installation  
at a military base in  
southern California.

# NEXOM

# WAVE

## OF PROVEN FILTRATION TECHNOLOGIES

**Nexom has been redefining state-of-the-art treatment since 1997** through the design and supply of hundreds of wastewater systems. Having proven our technologies at many full-scale installations, we ensure the facility you upgrade exceeds expectations, not nutrient limits.

 **Nexom**<sup>®</sup>



# 800+ MITA FILTERS ARE TRUSTED BY WWTPs WORLDWIDE

MITA is the more reliable,  
easier-to-install pile cloth filter  
the industry has been waiting for.

You were just looking for another pile cloth filter.  
You found MITA, a cloth media filter built better.

MITA meets standards for phosphorus, TSS, or Title 22-approved, Class A reuse while meeting the spec for the top tier, outside-in, pile cloth filters on the market, all in a more compact, pre-configured, easy-to-install package.

# MITA

water technologies

## PILE CLOTH FILTER

The MITA Pile Cloth Filter has exclusive features like a dual-direction vacuum shoe that allows for tighter disk spacing and the smallest footprint. Meanwhile, MITA's backwash system and access platforms are installed at the factory, making it simpler to install and safer to use.

It adds up to the fact that, with MITA, you are getting the best of the pile cloth filter experience, with a more compact, safer, simpler package.



### TECHNOLOGY:

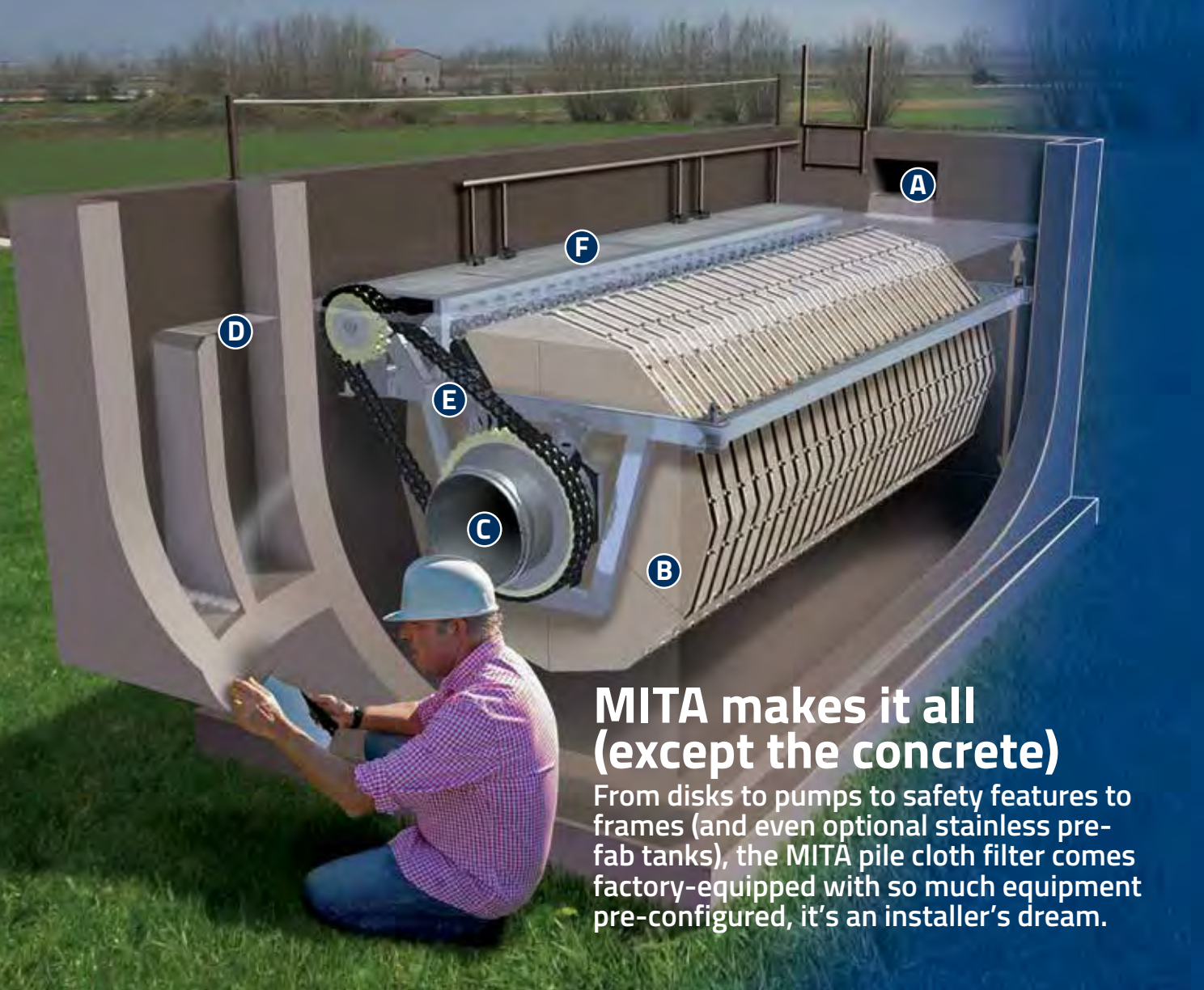
Pile cloth filtration

### ADVANTAGES:

- < 2 NTU / 5 mg/L TSS
- Reduces phosphorus down to <0.1 mg/L
- CA Title 22-approved 5 or 10  $\mu\text{m}$  media
- Tighter disk spacing saves footprint
- Horizontal or plug-and-play vertical shaft configurations to suit any size of plant
- Simpler to install, safer to use

### APPLICATIONS:

- Phosphorus removal
- Water reuse
- TSS reduction
- Tertiary filtration
- Stormwater/CSO treatment
- Auxiliary treatment



## MITA makes it all (except the concrete)

From disks to pumps to safety features to frames (and even optional stainless pre-fab tanks), the MITA pile cloth filter comes factory-equipped with so much equipment pre-configured, it's an installer's dream.

## Flow through the MITA pile cloth filter.

Influent enters the MITA filter tank (A) and passes through the pile cloth media (B), which removes suspended solids.

Filtrate from all disks is collected into a central tube (C) and passes into an effluent chamber (D) with a fixed effluent weir.

## Backwashing better.

As solids accumulate on the filter media, headloss increases, raising the water level in the tank. When it hits an operator setpoint, the backwash cycle begins.

A chain drive rotates disks past MITA's suction shoes (E) that remove accumulated solids from the filter media. (Backwash does not disrupt filtration since only a small fraction of the filter disk surface is under the suction shoe.) Chain drives are "heavy duty" double linked chains for larger filter units.

The engineered injection-molded HDPE vacuum shoes don't just reduce the void space and save footprint with their dual-direction design, they also extend filter cloth life by avoiding excessive cloth wear.

MITA reduces backwash by 20-40% and clean-in-place chemicals by up to 20% by reversing rotation during backwash cycles, thereby cleaning cloths more thoroughly. Disks are backwashed in clusters of up to four disks, and the dynamic backwash cycle is complete in <4 minutes even on the largest filters.

## How MITA makes install easy (and operations safer)

The standard MITA filter includes a number of pre-configured, factory-mounted components that reduce the work required to install the filter onsite. These components include safety features like an integrated maintenance platform (F), but also mechanical features like submersible backwash pumps dedicated to discreet clusters of disks in the filter assembly. More than just reducing footprint and installed costs, this provides mechanical redundancy that operators find beneficial between maintenance events.



# HOW IT WORKS

## Why pile cloth filter media instead of fixed-pore space media?

**Pile cloth filter media provides depth filtration and superior performance to the same nominal pore size, while it is less prone to fouling.**

During the vacuum backwash process, the pile cloth that typically lays flat along the surface of the media is pulled into an upright position. The open backing and the motion and flexibility of the cloth fibers allows trapped solids to be released more easily into the backwash; particles are less likely to become lodged in the filter media and require manual disk maintenance or other interventions.

Lastly, the backwash system in a pile cloth filter simply reverses the filtrate flow through a comparatively open vacuum shoe that accommodate debris and rags, whereas fixed pore media often require make-up backwash water delivered through pressure nozzles.

MITA does big plants.

**How about the largest European plant equipped with cloth media filtration?** At a 150 MGD (572,000 m<sup>3</sup>/day) wastewater treatment plant in Naples, Italy, sixteen 32-disk filters providing 28,000 ft<sup>2</sup> (2,560 m<sup>2</sup>) of filter area were commissioned in 2020 to achieve <10 mg/L TSS. Best of all, MITA's footprint savings allow the entire installation to fit in the footprint of a basketball court.



**< MITA >** PILE CLOTH  
water technologies FILTER

# HOW IT PERFORMS

MITA does small plants.

**Using its exclusive vertical-shaft design,** MITA pile cloth filters are in place at dozens of small, <1 MGD facilities around the globe, like the 0.6 MGD one at the a California casino's wastewater treatment plant for TSS polishing.


FIND THE WHOLE STORY AT  
[NEXOM.COM/MITA](http://NEXOM.COM/MITA).





## Good things do come in small packages.

MITA offers the ability to deliver CA Title 22-approved reuse, or  $<0.1$  mg/L Phosphorus, or CSO/stormwater treatment, all in a package small enough to fit in a New York apartment (probably cheaper, too).

A photograph of two men in a factory setting. The man on the left is wearing a yellow hard hat and a red and white checkered shirt. The man on the right is wearing a white hard hat and a dark suit with a light-colored tie. They are both smiling and looking at a large set of blueprints they are holding together. The background shows industrial machinery and pipes, with a blue color overlay on the right side of the image.

Blue PRO installation  
at a cheese plant  
in Wisconsin.

# BEAT ULTRA-LOW PHOSPHORUS LIMITS

For every regulator's action, imposing North America's lowest phosphorus limits, Blue PRO® provides the equal and opposite reaction. In fact, it's countless reactions, happening continuously thanks to the power of Blue PRO's patented reactive filtration. It's how one Alabama town gets down to 22 micrograms per liter (0.022 mg/L) of phosphorus. **Knowing this, how will you react?**

You can't choose your limits, but you can choose to beat them.

Where even low levels of phosphorus or metals can do a lot of damage, wastewater treatment plants can become targets of regulatory pressure to meet  $\mu\text{g/L}$  phosphorus and metals limits. Now, engineers under pressure to upgrade these plants have the tool for the job.

BluePR

Meeting phosphorus limits as low as **0.02 mg/L** requires more than traditional coagulation and filtration techniques. That's why engineers are turning to Blue PRO's patented reactive filtration, which harnesses chemical reactions performed on the surface of granular media within a sand filter to achieve unmatched performance and efficiency.

**TECHNOLOGY:**

Reactive filtration in a sand filter platform

**ADVANTAGES:**

- Hits industry-low phosphorus levels
- Lowest capital, O&M costs
- Continuous flow; no stopping for backwash, no changing media
- Uninterrupted filtrate quality

**APPLICATIONS:**

- Phosphorus removal
- Trace metals removal
- Great Lakes Mercury compliance

## Reactive filtration is the key.

**Blue PRO® reactive filtration is based on the principle of adsorption.** The process continuously regenerates a hydrous ferric oxide (HFO) coating on the sand media's surface before it comes into contact with the phosphorus- or metals-laden influent. The sand's collectively large reactive surface area guarantees contact with the targeted phosphorus or metal, which chemically binds with the HFO right on the sand media. The resulting coating, including waste HFO, phosphorus and other solids, are removed through the backwash or reject stream.

**Blue PRO uses 30% less chemical** than comparative technologies for ultra-low phosphorus. Coagulation followed by physical separation processes (clarifiers, filters, membranes, etc.) cannot compare to the efficiency of reactive filtration.

**This reduced chemical use not only lowers costs, it also produces less sludge.** Additionally, backwash can be recycled upstream for the added benefit of phosphorus pre-treatment upstream in primary or secondary treatment systems.

BluePRO®

# HOW IT WORKS

## Frequently asked questions.

**What influent characteristics are required?** The Blue PRO is surprisingly flexible as a tertiary treatment process. Several systems exist with high-strength influents between 5 and 12 mg/L P and TSS up to 50 mg/L. The ultimate treatment configuration will be dependent on the influent loads and treatment goals.

**What other metals can a Blue PRO system remove?** Nexom has Blue PRO® installations that are permitted for aluminum, arsenic, copper, lead, mercury, phosphorus, zinc, and other trace transition metals.

### **Does the media need to be replaced or topped up?**

Thanks to the continually-regenerative reactive filtration process, media is not a consumable. The process imparts a temporary chemical coating to the media that is stripped and reformed cyclically in situ. Many older sand filter designs of 20 years ago were prone to occasional media loss. Our washbox design, coupled with our unique control and monitoring systems, mitigates this concern. A Blue PRO system will waste almost no media in its lifetime, meaning that in a 20-year period, topping up is unlikely to be required, and the media should never need to be replaced.





## Building on an impressive platform

The Centra-flo<sup>®</sup> sand filter is efficient, flexible, and approved for water reuse under California Title 22/Class 1A.

## Go with the Centra-flo<sup>®</sup>

The Blue PRO filter is built on Nexom's own Centra-flo continuous-backwash sand filter process (pictured at left). In this process, influent enters the vessel (A) and is distributed to the cross-sectional area of the filter near the bottom of the sand column (B). Water is filtered as it flows upward, encountering the sand's hydrous ferric oxide (HFO) coating in a Blue PRO configuration or the attached-growth denitrifying bacteria in a Blue Nite configuration. Meanwhile, the sand (C) is moving downward by gravity to an airlift device (D). While the filtered water exits near the top of the filter (E), the airlift transports the phosphorus- or metals-laden media up into the washbox (F) where the discharged HFO coating and adsorbed contaminants are separated from the media. Water velocities in the washbox are carefully designed to carry away the contaminants (G) while allowing the freshly-scrubbed media to fall to the filter bed (H) as its cycle begins again.

A Blue PRO  
installation  
in Alabama.



## How low can you go?

For Blue PRO operators, the question is not whether they can meet their limit, but rather how much will they save on chemistry while still comfortably beating their limit?



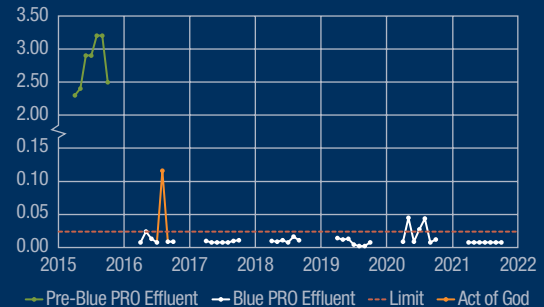
## North America's lowest phosphorus limit is no match.

Faced with an unprecedented limit of **0.022 mg/L**, one Alabama Blue PRO facility has averaged effluent phosphorus of only a fraction of that (excluding an isolated blip caused by an Act of God).

Since the Blue PRO is built into a Title-22/ Class 1A sand filter platform, the Alabama facility not only beats its phosphorus limits, its effluent contains only 1.5 mg/L of TSS.

FIND THE WHOLE STORY AT  
[NEXOM.COM/ULTRA-LOW](http://NEXOM.COM/ULTRA-LOW).

Alabama Blue PRO WWTF Total Phosphorus (mg/L)



BluePRO<sup>®</sup>

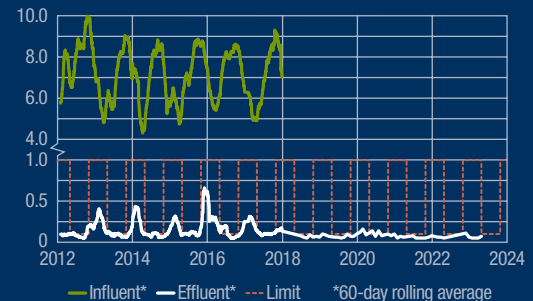
# HOW IT PERFORMS

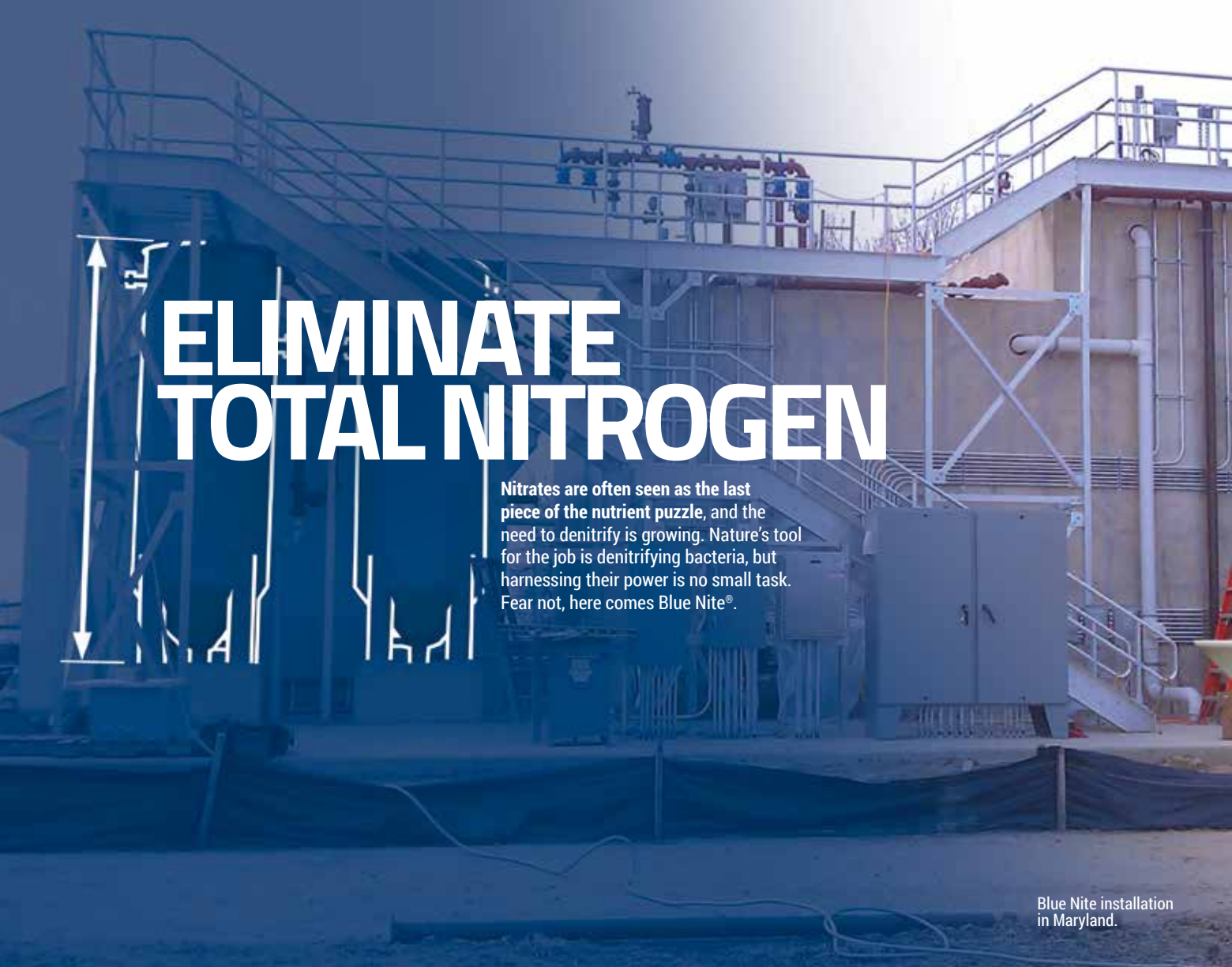
With a system that can average **13 µg/L**, the constraint is not the Blue PRO. The only limit is how low you need to go, and metering your dosage to match.

For one Massachusetts Blue PRO installation (11.62 Peak MGD), this means the facility flatlines phosphorus when limits are tight in summer, and saves on dosing as limits rise.

FIND THE WHOLE STORY AT  
[NEXOM.COM/DOSING](http://NEXOM.COM/DOSING).

Massachusetts Blue PRO WWTF Total Phosphorus (mg/L)





# ELIMINATE TOTAL NITROGEN

Nitrates are often seen as the last piece of the nutrient puzzle, and the need to denitrify is growing. Nature's tool for the job is denitrifying bacteria, but harnessing their power is no small task. Fear not, here comes Blue Nite®.

Blue Nite installation  
in Maryland.



The simple, flexible, biological way to beat nitrate limits.

**Nitrogen represents a unique challenge in wastewater.** Even as treatment plants remove ammonia via nitrification, the process causes an increase to the existing level of nitrates, a nutrient growing in notoriety across North America.

# Blue<sup>7</sup>Nite<sup>®</sup>

**Blue Nite<sup>®</sup> is equal to the challenge nitrates present.** Built upon a continuous-upflow sand filter platform, Blue Nite creates the optimal conditions required for denitrifying bacteria to thrive.

Those conditions don't happen by accident – they've been specifically designed by Nexom engineers – and **where denitrifiers take hold, nitrates don't last long.**

## **TECHNOLOGY:**

Biological denitrification

## **ADVANTAGES:**

- Nitrate removal to <1 mg/L
- Unique patented control system
- Lowest capital and O&M

## **APPLICATIONS:**

- Municipal treatment
- Industrial nitrate mitigation
- Existing treatment facilities needing end-of-pipe denitrification

## Engineered for performance.

**Design hydraulic loading rates** to Blue Nite® filters are determined by heterotrophic respiration rates, influent nitrate levels, nitrate variability, dissolved oxygen (DO) levels, and expected water temperatures. Nexom's design parameters, coupled with its proprietary control system, optimize the system to maintain a healthy, stable denitrifying biomass.

Blue **Nite**®

# HOW IT WORKS

## Frequently asked questions.

### **What carbon source does Blue Nite use?**

Blue Nite is flexible and can use many of the most common carbon sources, including methanol, acetic acid, ethanol, glycerin, as well as proprietary products like MicroC®.

### **What carbon dosing ratio does Blue Nite use?**

Optimal carbon dosing depends strongly on water characteristics including the dissolved oxygen and nitrate levels as well as the BOD strength of the carbon source. Nexom's chemical engineers can help you determine the ideal ratio at your site to achieve the required denitrification level.

**Nitrogen gas produced during operation** is primarily released from the process as the media passes through the airlift. Removal of gas in this fashion has several benefits including:

- eliminating false readings in headloss,
- eliminating the need to backwash because of gas entrainment, and
- eliminating the gas bump or upset gas "burps" due to significant nitrogen bubble accumulation typical in static bed filters.

**Can our Blue Nite installation be retrofitted at a later time for Blue PRO® reactive filtration if we don't need phosphorus removal yet?** Definitely, and we have helped other customers do this before. In fact, the amount of "retrofitting" required is minimal. Because the two systems utilize the same Centra-flo® granular media filtration system as a process platform, the additional infrastructure required is the Blue PRO's dosing system and virtually nothing else. (The same goes for Blue PRO installations being retrofitted for Blue Nite biological denitrification.)



# One tank, many uses.

The same Centra-flo® platform supports both Blue PRO reactive filtration as well as Blue Nite biological denitrification, even in the same tank.





**Continually meeting total nitrogen limits  
may cause reduced stress and improved sleep.**

With Nexom's denitrification experience standing behind every Blue Nite installation, you can be confident that your plant is in the right hands.

Makes nitrogen disappear into thin air.

**Blue Nite® reduces Total Nitrogen to less than 5 mg/L, and in many cases much less.** At the same time, it can be combined with Blue PRO® technology for a complete nutrient solution in the same vessel.

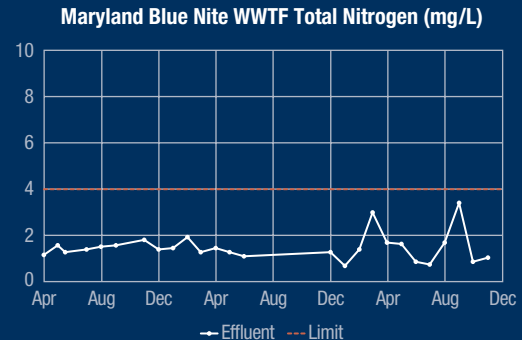
Blue **Nite**®

# HOW IT PERFORMS

**This is what a military facility in Maryland found.** It installed a combined Blue PRO and Blue Nite facility to reduce its nutrient impact on the sensitive Chesapeake Bay region, and the results are remarkable.

Even as the site balances its carbon-source usage to optimize costs while remaining in compliance, the site produces effluent Total Nitrogen levels that over two-plus years averaged 1.48 mg/L—well below the 4 mg/L limit—while also keeping phosphorus well within compliance.

FIND THE WHOLE STORY AT  
[NEXOM.COM/CHESAPEAKE](http://NEXOM.COM/CHESAPEAKE).



Blue Nite installation  
at a military facility  
in Maryland.

A Blue PRO-equipped  
facility in Idaho

# BEST OF ALL, WE'LL DO THE DIRTY WORK

Treatment plants are often complex facilities full of technologies whose failure means environmental calamity. Trust their installation and maintenance to the pros who know them best.



Trust your filter's installation or service to the people who built it.

**Experienced SiteWorks™ field service professionals are experts at installing and maintaining wastewater systems.**

Work with SiteWorks to get the most out of your equipment, from day one, and through its entire life.

# SITWORKS

## Duckett Creek, Missouri

**Our relationship with the Duckett Creek Sanitary District began in 1994.**

The initial upgrade helped the 5 MGD (19,000 m<sup>3</sup>/day) plant near St. Charles, Missouri save over \$60,000 USD in energy and operating costs annually.

Since partnering with SiteWorks, Duckett Creek has doubled the plant's capacity and seen superior results, and today, SiteWorks continues to deliver them services in the form of replacement parts and system upgrades.

LEARN MORE ABOUT SERVICES AT [NEXOM.COM/SITWORKS](http://NEXOM.COM/SITWORKS).

### **SERVICE:**

SiteWorks on-site wastewater equipment installation & maintenance

### **ADVANTAGES:**

- Experienced professionals deliver fast, reliable install and maintenance
- Services all brands, enabling single-source maintenance programs
- Single point of responsibility for Nexom equipment

The wastewater industry has seen how nutrients and energy costs expose the limits of existing solutions. Nexom designs and supplies

# THE NEXT WAVE OF PROVEN TECHNOLOGIES

helping consulting engineers confidently exceed all municipal or industrial demands.



Get the answers you need to move your project forward.

Call: **1-888-426-8180**

Type: **info@nexom.com**

Click: **www.nexom.com**



Axiom Water companies

CB1-FL-23-07