COVER STORY: SMGEAG Guadeloupe

THE ANDRITZ MOBILE FILTRATION UNIT GUARANTEED SAFER WATER FLOWS IN ONLY SIX MONTHS

RESTORING A LIFELINE

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At the Desvarieux Le Moule drinking water treatment plant in Guadeloupe, ANDRITZ has three 20-foot shipping containers hard at work. Together, they're producing 200 cubic meters of clean drinking water every hour – and, just as importantly, keeping an AUDRA dialysis center and several healthcare facilities supplied with the water its patients cannot live without. It's just one example of how mobile filtration is helping to solve a critical global issue.

Water in six months
When two critical sand filters failed in Guadeloupe, drinking water production was cut in half. An ANDRITZ Mobile Filtration Unit restored full plant capacity within just six months, before cyclone season began.

Guadeloupe is a French archipelago in the eastern Caribbean, and water security here is a fragile thing. Tourism strains an ageing network. The island sits squarely in the Atlantic cyclone belt, where storms can overwhelm infrastructure, contaminate sources and cut off communities without warning. And the drinking water plant that serves this particular corner of the island had, until recently, been running on borrowed time.

In the first half of 2024, two of its four sand filters had failed without warning. The plant draws water from a mountain river and normally treats it at a rate of 400 cubic meters per hour. With two filters out of service, that figure was halved. Downstream, water utility customers were now dependent on a facility that could no longer guarantee supply. For healthcare facilities, particularly patients receiving dialysis treatment, reliant on pure water, there's no margin for interruption.

"SMGEAG (Syndicat Mixte de Gestion de l'Eau et de l'Assainissement de la Guadeloupe), the public authority responsible for water and wastewater services across much of Guadeloupe, found itself under direct pressure to find a solution, and fast," says Frédéric Granet, Business Application Manager – Water & Environment at ANDRITZ Separation. "It was vital to restore full production before the Atlantic cyclone season began (from June 1 to November 30), meaning a very tight deadline of roughly six months – that's why they called on ANDRITZ for help."



ANDRITZ Mobile Filtration Unit

NOT A NEW PROBLEM, BUT A NEW KIND OF ANSWER

Drinking water crises are rarely caused by a single dramatic event. They are usually the product of years of deferred maintenance, underinvestment and ageing infrastructure, with one unexpected failure finally pushing a system past its limits. Guadeloupe's situation contained all of these pressures – and it is far from being unique. According to a UNESCO report, 2.2 billion people currently do not have access to clean water, many of them facing exactly this kind of slow-building, infrastructure-driven crisis.

ANDRITZ was already a trusted supplier to SMGEAG, having worked alongside the authority on sludge treatment equipment. Prior to the AMFU, SMGEAG had contracted ANDRITZ to supply a containerized system to dewater the sludge produced at one of its wastewater treatment plants. The Bailiff WWTP – an isolated site with only light infrastructure – was equipped with a container-mounted screw press designed to handle around 10 m³/h of urban sludge. The efficiency and reliability of that mobile solution were proven in the field.

So, when the emergency arose, the team offered another plug-and-play solution: the ANDRITZ Mobile Filtration Unit, or AMFU for short. Launched in 2023, the AMFU is designed to address this very challenge – offering water filtration quickly, in locations that are hard to reach or on timescales that make conventional construction impossible.

Drinking water, anywhere
Built inside standard shipping containers, the ANDRITZ Mobile Filtration Unit (AMFU) is a plug-and-play filtration plant. Factory-tested and ready to connect, it brings clean water quickly to locations where conventional construction is too slow or impractical.

ANDRITZ's answer was to take an open gravity filter – one of the oldest and most reliable processes in water treatment – and rebuild it inside two 20-foot shipping containers, factory-assembled, factory-tested, and ready to connect.

The technology at the core is deliberately straightforward. Gravity filtration works by passing water downward through a bed of sand, activated carbon, Filtralite® or other materials, and collecting the cleaned water below through an underdrain system. For Guadeloupe, the sand bed was indeed replaced with another filter medium considered to be more effective in this application: Filtralite®. Operators all over the world already know how to run gravity filters, which means a local team can take ownership quickly after a short training period. What the AMFU adds to this proven process is ANDRITZ's own underdrain technology, stainless steel 316L construction, a fully autonomous PLC, a user-friendly control interface, and remote access to all operational data.

The process container completes the package with a backwash pump, air blower, dispersal ramp, chlorination system and UV disinfection. In locations without any existing downstream treatment, the two containers together constitute a complete drinking water plant. The available capacities are 50, 100 and 200 cubic meters per hour.

For Guadeloupe, the answer to the arithmetic was straightforward. One 200 m³/h AMFU would stand in for the two failed sand filters and restore the plant to its full 400 m³/h output.

TIME-PRESSURE, TIGHT SPACES

Notification of the award came in June 2024. From that point, the race was on to beat the cyclonic deadline.

200 m³/h

One 200 m³/h mobile filtration unit was enough to replace two failed filters and restore full plant capacity.

ANDRITZ × SMGEAG

The AMFU's standard-range design proved critical here. Because the unit is a defined product rather than a bespoke build, engineering and procurement could be rolled into a compressed manufacturing cycle without starting from scratch. The containers were assembled and fully tested at the ANDRITZ workshop in Scorbé-Clairvaux, France, then loaded onto a ship. Five weeks later, they arrived in Guadeloupe. The site waiting for them was not generous. The plant is built into a steep slope, and the footprint available for the new installation was tightly constrained. Each container measures approximately 6×3×3 meters – compact enough to fit where a conventional civil-works expansion never could have, and certainly not in time.

Working closely with the SMGEAG technical teams, the ANDRITZ team arrived on the island twice, for about a week on each visit. On the first visit they connected the units to the existing plant and brought them into service, on the second visit they completed the final performance adjustments.

By March 2025, the unit was running, reaching its rated 200 m³/h capacity shortly after. Full capacity was restored. The dialysis centre had water. The cyclonic window was still months away.

Small footprint, big impact
Installed on a steep hillside with very limited space, the containerized AMFU fit where a conventional plant expansion could not. The compact design made rapid deployment possible without major civil works.

Proven technology, modern delivery
The AMFU combines the reliability of traditional gravity filtration with advanced automation, remote monitoring, and easy operation. Local teams can take ownership quickly after a short period of training.



Global solution
From ageing infrastructure and contamination events to natural disasters and climate pressure, water challenges come in many forms. The AMFU was designed to provide reliable filtration wherever clean water is needed most.

THE GLOBAL POTENTIAL OF THE AMFU

The first AMFU sold – a 100 m³/h unit – has now been operating continuously for three years. Installed at a site where a once-clean groundwater source had deteriorated to the point where filtration became essential, it went in quickly and secured the community's supply. A 50 m³/h unit is currently being manufactured. The Guadeloupe installation is the largest of the standard range to date.

Each of these installations tells a version of the same story. The obstacles to clean water are varied – remote geography, failing infrastructure, contamination events, natural disasters, the slow creep of climate pressure on vulnerable systems – but the underlying need is always the same: reliable filtration, wherever the water is, whatever the local constraints.

And that track record spans more than one kind of challenge. "ANDRITZ has experience and expertise with supplying mobile solutions. Our plug-and-play units, whether for water filtration or for sludge dewatering, are reliable, CAPEX efficient and easy to operate solutions. With these, we support our municipal and industrial customers to be resilient and meet their infrastructure challenges for clean water or wastewater treatment.

Our references at SMGEAG are perfect examples of such performing, resilient systems," says Thibault Voisembert, Regional Sales Manager – Environment Industry.

The AMFU was designed to solve a very specific and recurring version of that challenge: a situation where you need a working filtration plant quickly, in a place where building one from scratch is not an option. As a plug-and-play solution grounded in the fundamentals of gravity filtration, it is quick to test, ship and install – and it can be operated and maintained by local teams.

In Guadeloupe, the AMFU restored a community's lifeline just in time for cyclone season. But clean water crises are not unique to the Caribbean – and neither is the solution. Wherever supply is under pressure, the ANDRITZ Mobile Filtration Unit is ready to move.

ANDRITZ EXPERT:

→ **Frédéric Granet**
Business Application Manager, Water & Environment, Separation

GETTING TECHNICAL GETTING TECHNICAL GETTING TECHNICAL GETTING TECHNICAL



ANDRITZ MOBILE UNITS

ANDRITZ mobile units are modular, container-based design allowing the units to be transported by road, rail, or sea and installed on sites with limited space, whether as a temporary backup during plant maintenance or as a permanent addition to an existing facility.

Benefits
- Sustainable solution
- Quick and easy installation– plug-and-play system
- Variable capacity
- Simple and reliable operation

6 months

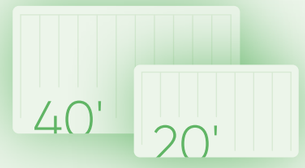
Within just six months, the project successfully progressed from managing an initial emergency response to establishing full-scale drinking water production.

ANDRITZ mobile dewatering units

The mobile dewatering units can be built with 20' or 40' containers and can be fitted with various dewatering technologies: centrifuge, screw press, belt press.

- Dewatering unit
- Feeding system
- Complete polymer make-up system
- Flexible cake discharge system
- Can be fitted with ARGOS, ANDRITZ polymer savings digital solution

They are available in various sludge treatment capacities from 5 to 60 m³/h and can be easily combined and higher capacities can be engineered on request.



ANDRITZ Mobile Filtration Unit (AMFU)

The AMFU is built around two standard 20-foot shipping containers – one for filtration, one for process control – that together form a self-contained water treatment system.

20' filtration container
- Open gravity filter with the ANDRITZ Underdrain System (AUS)
- Dispersal ramp for even water distribution
- 316L stainless steel construction
- Standard shipping container dimensions (6 m × 2.4 m × 3 m)
- Filtering media: sand, activated carbon (CAG), Filtralite®, and others depending on application

20' process container
- Air blower for backwash air scouring
- Backwash pump
- Dosing injection system (coagulant, chlorine, and other reagents)
- UV disinfection
- Control panel with autonomous PLC & remote data access

The system is currently available in three standard capacities – 50 m³/h, 100 m³/h, and 200 m³/h – and can be scaled by combining multiple filtration containers with a single process container. Higher capacities can be engineered on request. For industrial applications, the AMFU can also be configured for process water production rather than drinking water treatment.