SUPERIOR FILTRATION

CASE STUDY

AGF: AUTONOMOUS GRAVITY SAND FILTER

MECHANICAL RAPID GRAVITY SAND FILTER, POTABLE WATER TREATMENT PLANT, ALICE

Client: Amathole District Municipality
Industry: Potable Water
Region: Eastern Cape, South Africa
Product: 5 x AGF42S Autonomous Gravity Sand Filter, ±12 MLD [UPGRADE]
Installation: 2003 / 2023

Challenge

- Amathole District Municipality operates the potable water treatment plant at Alice, a rural town in the Eastern Cape province in South Africa
- The Alice Water Treatment Plant upgrade was part of an infrastructure project funded by the Department of Higher Education and Training (DHET), with the University of Fort Hare (UFH) acting as the implementation agent in collaboration with Amathole District Municipality
- The project aimed to improve the water supply for the UFH Alice Campus and surrounding communities
- Before the upgrade, the treatment plant was designed with 3 x AGF42S in 2003 to treat seven mega-litres of water daily
- The upgraded capacity needed 12 mega-litres of water per day using reliable treatment technologies that efficiently treat water to the required specifications
- During the design phase, process engineers sought polishing filters to ensure compliance with potable water standards for Turbidity and TSS.

  They required:
  – easy installation
  – high efficiency
  – low maintenance costs
  – easy maintenance functions
  – zero electrical energy consumption
  – high reliability.

Application

- Final Filtration – **Mechanical Rapid Gravity Sand Filters** (polishing filters) at Potable Water Treatment Plant.

Solution

- The client has been using Superior Filtration's AGF autonomous gravity sand filters for the past 23 years and has been consistently satisfied with the filtrate water quality. This long-term satisfaction led them to choose our filters again during the recent Alice Water Treatment Plant upgrade, a testament to the reliability and performance of our AGF
- The inherent simplicity of our AGF autonomous gravity sand filters addressed constraints presented by the rural location, and they easily met the requirements set by the design engineers
  – Easy Installation
    - Minimum civil works on site
    - Fabrication under tightly controlled factory conditions
  – High Efficiency
    - AGF filters cycle autonomously between filtration and backwash modes, resulting in regular, thorough cleaning of the filter bed
  – Low Maintenance Costs
    - No peripheral equipment (backwash pumps, controllers, compressors) required
    - Manpower is limited to periodic oversight functions
  – Easy Maintenance
    - Maintaining the integrity of the mechanical structure and periodic replacement of nozzles and sand
  – Zero Electrical Energy Consumption
    - Gravity flow through the filters
    - Complete autonomous function
  – High Reliability
    - No moving or rotating components
    - No peripheral components
- Our technicians installed two additional **AGF42S mechanical rapid gravity sand filters**, each processing approximately 100 m^3/h at an average 7 m/h filtration velocity.

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Results

- Alice WTP upgraded from ±7 MLD to ±12 MLD
- Since commissioning in 2024, the AGF filters have consistently provided effective and efficient filtration
- Maintenance and operating costs have been kept to a minimum
- The filters continue to produce filtrate that complies with the drinking water standard.

Client experience

"We initially installed four AGFs for Alice WTW in 2003. We have been impressed with the filter's performance, including its low maintenance and operational cost compared to other filters. We considered them again and added two more filters during the plant expansion phase in 2023."

Gervais Sery: Senior Manager – Water and Sanitation - Amathole District Municipality

Please contact us for more information

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