

## AGF: AUTONOMOUS GRAVITY SAND FILTER

### THEMBISILE HANI LOCAL MUNICIPALITY – BUNDU WATER TREATMENT WORKS (WTW)



**Client:** Thembisile Hani Local Municipality – Bundu Water Treatment Works (WTW)  
**Industry:** Municipal Potable Water  
**Region:** Mpumalanga, South Africa  
**Product:** 4 x AGF48SA – Autonomous Gravity Sand Filter - ±10 MLD  
**Installation:** 2017

#### Challenge

- Thembisile Hani Local Municipality launched the Bundu Water Treatment Works (WTW) to provide clean, safe potable water to remote rural communities in Mpumalanga.
- Many challenges had to be overcome including poor accessibility, low funding, little or no electricity on site, and a lack of operational bulk water filtration skills.
- The Bundu WTW's initial design included traditional large (20x20m) concrete water filters with traditional backwash systems, which are complex, expensive and time-consuming to build, and then also require ongoing human management, continuous power supply and high operational and maintenance costs.

#### Application

Polishing filter for Bundu WTW for the removal of fine suspended solids from the water post clarification.

#### Solution

- Following a specialist consultation with Superior Filtration (who have extensive experience polishing potable water for rural communities) - freely available to all design and construction engineers - the scope of work changed from concrete filters to mechanical Autonomous Gravity Sand Filters (AGF).

- Factors taken under consideration:
  - Ease of Installation (reducing capital outlay and speeding up final plant delivery)
    - ▶ Minimum civil works on site
    - ▶ Filters are transported to site and installed in place with limited mechanical assembly
  - Complete Autonomous Function i.e. automatic backwash, no backwash pumps, no human inputs, no external controls
  - Low Maintenance with virtually no downtime due to high reliability and efficiency
  - Zero Energy Consumption
  - Human Intervention Limited to periodic maintenance inspections

#### Results

- Easy and rapid installation and commissioning
- The Superior Filtration AGF was installed in just two days.
- The AGF was the first process unit to be installed on site at Bundu WTW, and was used through direct filtration a full year before other process units, such as sedimentation tanks, were constructed.
- As a result, the municipality was able to supply the community with high quality water suitable for drinking much earlier than anticipated and long before the completion of the plant construction.
- The Bundu WTW Sand Filters have been operating smoothly and entirely autonomously for five years already, without any electricity, human intervention, maintenance, or downtime.