

CASE STUDY

GRAVIFILTER: SELF-CLEANING GRAVITY SCREEN FILTER

HARMONY GOLD KLERKSDORP – TAILINGS RETREATMENT PLANTS



Client: Harmony Gold
Industry: Gold Mining and Tailings Reprocessing
Region: North West Province, South Africa
Product: GraviFilters, Model VA4, ± 100m³/hr
Installation: 2022/23

Challenge

- Harmony Gold operates waste reprocessing system plants at four major tailings storage facilities around Klerksdorp, which not only reprocess tailings but also ensures water is reclaimed and reused.
- The plants rely heavily on slurry pumps that require an uninterrupted supply of clean (solids <200micron) gland service water (GSW).
- Recycled process water used as GSW often contains high levels of suspended solids. Dirty GSW or an interrupted water supply cause the slurry pump seals to seize rapidly, damaging the shaft, stuffing box, gland packing and follower - and possibly also the bearing unit.
- The result is expensive downtime, additional labour and part replacement costs.

Application

GraviFilter filters for the removal of suspended solids from water, preventing blockages and protecting equipment from damage.

Solution

- Following a specialist consultation – freely available to all engineers - five VA4 GraviFilters were supplied to the tailings reprocessing plants.

- Factors taken under consideration:
 - GraviFilters are designed specifically for the removal of suspended solids and organic matter from water.
 - Completely different to the normal filtration process, GraviFilter is a non-pressurised, gravity feed filter – the ideal filtration solution where solids are normally difficult to filter or where waste clogs up normal filtration surfaces.
 - The built-in continuous self-cleaning mechanism of the GraviFilter offers long, uninterrupted filter runs with limited operator intervention.

Results

- Superior Filtration engineers were able to provide valuable technical input based on their extensive experience at other mining operations.
- By removing all 'large' particles that would cause blockages and wear on the slurry pump glands, and by safeguarding sufficient water flow, the GraviFilters have eliminated all gland related issues since installation.
- GraviFilters are now critical components in the slurry pumping systems, enabling these to perform as designed in extremely challenging conditions. No breakdowns. No downtime.