

MINE WASTE SOLUTIONS

Low-cost, high-margin, quality ounces

OCTOBER 2024

Acquired in October 2020, Mine Waste Solutions (MWS) is a low-cost surface retreatment facility whose primary activity is to reclaim gold by retreating low-grade historical tailings and safely and responsibly depositing the resulting retreated tailings in a state-of-the-art mega tailings storage facility (TSF), Kareerand.



MWS is located in the Klerksdorp/Stilfontein/Orkney and Vaal River areas in the Gauteng and North West provinces, South Africa, and is one of several retreatment entities operated by Harmony, the largest gold reclamation operator globally.

When we acquired MWS, Kareerand was close to capacity with an expected operating life of three years. In 2021, Harmony committed to invest ~R2.3 billion in expanding and growing production from MWS, primarily by expanding the Kareerand, MWS's primary tailings deposition facility to enable the processing of additional sources. The Kareerand expansion will increase MWS's tailings storage capacity, enabling an increase in the volume of tailings processed daily and thus the volume of gold produced. This expansion will extend MWS's mine life to 2040.

“Our investment in MWS is an excellent example of a considered allocation of capital, aimed at delivering both financial and ESG benefits. Given its lower risk, high margins and positive ESG story, MWS is Mining with Purpose in action.”

MWS – key facts FY24

1

Employed 2 396 people – up from 2 185 in FY23; 71% of employees are from local communities

2

Produced 3 770kg (121 207oz) of gold, an increase of 34% on FY23 – equivalent to 8% of total group production

3

Average gold price received of R986 777/kg, 17% up on the R845 341/kg received in FY23

4

All-in sustaining costs of R605 710/kg, the lowest within the group – down 16% on R721 034/kg in FY23

5

Capital expenditure of R1 463 million – 57% up on FY23 – mainly due to the Kareerand expansion and construction of 4 and 5 pump stations

6

Strong operating free cash flows over the 15-year life of mine
Franco-Nevada stream concluded in October 2024 (Q2 FY25)

7

All environmental authorisations in place – including those for atmospheric emissions and water use licence

8

ISO 14001-certified

Kareerand expansion project – rationale

MWS reclaims gold by retreating approximately 2.2Mt of historical tailings a month. The resulting waste residue is deposited by cyclone on the original 560ha-footprint Kareerand TSF. At initial production levels, it would have reached its authorised height of 80 metres by 2025.

The potential inclusion of additional tailings sources into MWS highlighted the need for additional deposition capacity. The R2.3 billion capital investment largely covers the extension of the footprint of the existing Kareerand TSF by 340ha while simultaneously increasing the height of the combined complex to 100 metres.

Currently, MWS processes three tailings streams – a fourth stream is being introduced as part of broader expansion plans. This will increase daily processing capacity from 78 000 tonnes to 86 000 tonnes, which is equivalent to 28 million tonnes annually, for which the expanded mega Kareerand TSF will have capacity to accommodate the additional residue deposition required until 2040.

This will bring annual gold production at MWS to around 110 000oz over the current planned life of mine to 2040.

Phase 1: In addition to the expansion of the Kareerand TSF, this phase also included





construction of additional return water and stormwater handling facilities (pump stations) to enable the reclamation of most old tailings dams on unstable dolomitic soil in the area. A new 6km return water pipeline from the Kareerand TSF to the Midway distribution station has been completed. This pipeline increases the rate at which water can be returned to tailings reclamation operations, where it is employed in hydromechanical mining, and to the processing plant. Return water is recycled to relieve pressure on stressed potable water sources.

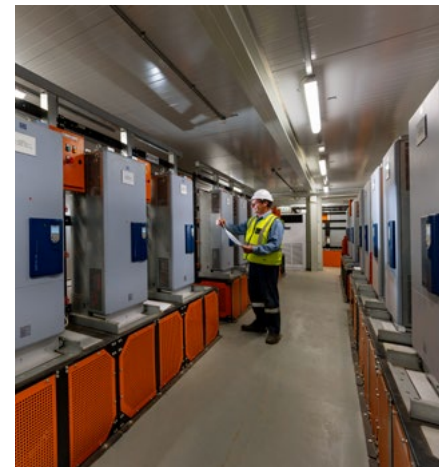
Phase 1, which is fully permitted, was delivered on time and within budget. Construction of the reclamation and pumping stations at MWS’s

TSFs 4 and 5 has been completed. They were commissioned in August 2024 and are now fully operational. MWS is currently retreating 14 historic tailings facilities.

Phase 2: The phase 2 scope of work entails completing all outstanding aspects related to the construction of the entire area covered by the Kareerand tailings facility. This includes the installation of the necessary infrastructure and services, to reticulate the tailings for cyclone deposition. While phase 1 (55% of the project) involved preparing the low-lying basin of the facility, phase 2 (45%) applies to the north-western side of the basin. Phase 2 is scheduled to be completed and commissioned by the end of calendar year 2025.

MWS, a testament to Mining with Purpose

Responsible stewardship	Operational excellence	Cash certainty	Effective capital allocation
			
MWS aims to have a net positive impact on the environment and society (local host communities especially)	MWS is making a positive contribution through the production of safe, profitable, low-cost, high-margin ounces	MWS contributes positively to revenue and operating free cash flow	Our investment in MWS and the Kareerand TSF expansion is a prime example of an effective allocation of capital in low-cost quality ounces



Responsible environmental stewardship

Best practice tailings management, responsible use of water, responsible waste management and community upliftment, among others, are important sustainability considerations.

Tailings waste management

Those TSFs falling within the ambit of MWS are monitored in line with the Global Industry Standard on Tailings Management. This includes robust and meticulous engineering and dam design. Continuous risk management, layered assurance and oversight provide integrity, stability, and environmental and legal compliance for our TSFs. We regularly monitor and report on the performance of the MWS TSFs to the authorities, and engage with key stakeholders on progress.

Responsible and effective waste management also helps to reduce environmental impacts and mitigate associated liabilities. Guidelines on mineral, non-mineral and hazardous waste materials are included in operational environmental management systems. The Kareerand TSF is located on land that is certified as geologically stable by, among others, the South African National Standard (SANS) for mine residue (SANS 1200).

Water

Responsible tailings management includes limiting any environmental impact, particularly on the nearby Vaal River, a critical water source for neighbouring communities and for South Africa as a whole. Comprehensive water management measures are in place, primarily to ensure the integrity of the TSF by restricting the pooling of water on the surface of the TSF (freeboard management) which remains critical to our legal compliance. Excessive water should not accumulate on facilities except at night for controlled decant during the day. Given that Kareerand holds a specific volume of water, the facility decants continuously. Drone technology is used for monthly surveillance.

The Kareerand TSF expansion involves the incorporation of several water management initiatives. The operation's use of clean water is limited by increased use of mine-affected water, with the return of as much water as possible to the plant and reclamation sites. The entire water reticulation system at Kareerand has been upgraded and a reverse osmosis plant installed. In addition, 20 interception boreholes were drilled and equipped at the TSF to facilitate the return of seepage water back to the facility for reuse.

Air quality

We have strict controls in place to manage dust emanating from the TSF, including the continuous monitoring of data from sampling points and the implementation of mitigation measures when and where necessary.

MWS (including the Kareerand TSF extension) uses better-quality activated carbon (for point source emissions) as well as irrigation, chemical suppression, dust netting and revegetation to contain and limit the incidence of particulate matter and dust fallout exceedances.

We used better quality activated carbon (for point source emissions) to address particulate matter emissions, and to prevent dust fallout exceedances, we implemented irrigation, chemical suppression, dust netting and vegetation initiatives. We installed additional dust suppression emitters around the TSF and sprayers next to roadways and dams to further suppress dust.

Work to limit and reduce nitrogen oxide and sulphur dioxide emissions involves improved management and the optimising of plant processes.

Responsible social stewardship

Following the acquisition of the Mponeng, Moab Khotsong and MWS assets, Harmony continued to fund the broad-based livelihoods programme underway in host communities such as those in Khuma and the Klerksdorp, Stilfontein and Orkney areas.

The programme delivers livelihood skills development, knowledge transfer, ongoing mentorship, practical application, and monitoring and evaluation of results. Several programmes enable diversified local economic impact, expansion and social change that empower communities to reduce their dependence on mining companies.

OUTLOOK FY25

- The majority of our investment in the Kareerand expansion project will be completed by the end of FY25.
- The streaming contract that entitled Franco-Nevada to around 25% of all gold produced by MWS was concluded in October 2024. The end of the contract will boost the average gold price received by MWS, as a result of which operational free cash flow generated is expected to increase by more than R1 billion annually (at current spot gold prices).
- A 50ha Eucalyptus macarthurii woodland natural attenuation programme is to be implemented. The trees to be planted will intercept and absorb any shallow seepage that might occur around the Kareerand TSF.



“MWS’s Kareerand expansion is being delivered on time and on budget and will begin making a significant contribution to Harmony’s bottom line from FY25”

