

DECEMBER 2023

KAREE 4 TAILINGS STORAGE FACILITY (TSF) 1

DETAILS OF TAILINGS STORAGE FACILITY

Tailings Storage Facility (TSF) Name	Karee Mine K4 Concentrator TSF 1
Operation	Marikana
Operational Status	Dormant since 2008
Operating Segment	RSA - PGM
Location	45km east of the town of Rustenburg in the North West province – please refer to Figure 1
Latitude, Longitude (decimals)	-25.6815, 27.4522
Ore Source	Underground
Type of Storage Facility	Impoundment (upstream development)
Deposition Methodology	Spigot
Year of Commissioning	1989
Consequence Classification (GISTM, 2020)	High
Operating Contractor	Fraser Alexander (Pty) Ltd (FAT)
Engineer of Record (EoR)	SLR Consulting (Pty) Ltd
Current Maximum Height (m)	37
Final Maximum Height (m)	37
Total Volume Already Deposited (Mm³)	17.0
Life of TSF (year)	N/A



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TECHNICAL ASPECTS:

Design Criteria

GISTM and best practice guidelines including Australian National Committee on Large Dams (ANCOLD) (Guidelines on Tailings Dams, July 2019). Site specific design criteria were specified by the EoR. Details are included in the Design Basis Report (DBR).

Stability Assessment and Mitigation Measures

A detailed stability assessment based on piezocone probing and laboratory test work was conducted in 2022. (SLR Project No: 720.19129.00042 Rev 0, February 2023)

All the FoS are above the recommended limits and thus no mitigation measures were required.

Dam Breach Assessment

Assessment completed in 2022
(SLR Project No: 720.19129.00011 Rev 1, December 2022)

Area of Inundation

Has been identified by EoRs – please refer to Figure 2

Summary of Human Exposure

Consequence classification has been based on Population at Risk (PAR). Communities have been identified and are being engaged through various means including Community Engagement Forums (CEF)

DOCUMENTATION:

Site Specific OMS Manual

Version 2023 available

Mandatory Code of Practice (MCOP) Document No: SS-ZA-PGM's-MCOP-CON-TLS-0101 is in place (dated September 2022)

Design Basis Report (DBR)

Version 2023 available
(SLR Project No: 720.19129.00033 Rev 1, July 2023)

Environmental Management System

The Environmental Management System is ISO accredited (ISO 14001:2015)

The initial Environmental Management Programme (EMPr) is dated 2014.



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Surveillance:

Surveillance Frequency

Daily by the Operator and quarterly reports of critical controls submitted to and reviewed by the EoR

Surveillance Technology/System

K2Fly Decipher

Deformation Monitoring

Interferometric Synthetic Aperture Radar (InSAR)

Phreatic Surface Levels & Pore Pressure Measurements

Standpipe piezometers

RISK MANAGEMENT / EMERGENCY PREPAREDNESS:

Risk Assessment

Annual Risk Assessment (Bowtie) completed with no untoward risk identified

Risk Management

Site specific OMS Manual in place
Site specific Trigger Action Response Plans (TARPs) in place
Critical controls established and implemented
Operating contractor Technical and Operational Risk Assessment System (TORAS)

Site Specific Emergency Preparedness & Response Plans (EPRP)

Version 2023 available

Annual emergency mock drill for a catastrophic TSF failure – undertaken on 15 June 2023 with SSW employees and contractors.

Environmental emergency preparedness is managed on site according to ISO14001: 2015.

CLOSURE & POST CLOSURE

Closure Planning

In place - report prepared by Golder Associates (Golder Reference: 20141966-340280-9, June 2021)



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Closure Costing

Adequate financial capacity in place
Financials prepared by Golder Associates
(Golder Reference: 21467970-349390-1, December 2021)

Asset Insurance Cover

In place – July 2023 to June 2024

Independent Reviews:

Independent Tailings Review Board (ITRB)

29 June 2023 with no material concerns identified

Future ITRB Review

2026

Performance Reviews

Annual and quarterly reports with inspections completed by EoR
(SLR Project No: 720.19129.00033 Rev 0, March 2023)

Dam Safety Review (DSR)

Carried out by an independent third party in 2020. All recommendations at the time have been addressed in the last 2 years.
(KP Reference: RI301-00877/02 Rev B, 26 August 2022)

Next review scheduled for 2026



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Figure 1: Layout of Karee Tailings Dam Complex



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