

**JULY 2023**

**LEEUDOORN TAILINGS  
 STORAGE FACILITY (TSF)  
 UPPER & LOWER**

**DETAILS OF TAILINGS STORAGE FACILITY**

<b>Tailings Storage Facility (TSF) Name</b>	Leeudoorn TSF (upper and lower)
<b>Operation</b>	Kloof 2
<b>Operational Status</b>	Active
<b>Operating Segment</b>	RSA - Gold
<b>Location</b>	7 km north-east of Fochville in West Rand - please refer to Figure 1
<b>Latitude, Longitude (decimals)</b>	-26.4601028, 27.5680028
<b>Ore Source</b>	Underground
<b>Type of Storage Facility</b>	Impoundment (upstream development)
<b>Deposition Methodology</b>	Day-Wall Paddock
<b>Year of Commissioning</b>	Upper: 1991 Lower: 1990
<b>Consequence Classification (GISTM, 2020)</b>	Extreme
<b>Operating Contractor</b>	Stefanutti Stocks Inland (SSI)
<b>Engineer of Record (EoR)</b>	Knight Piesold (Pty) Ltd
<b>Current Maximum Height (m)</b>	Upper: 32.5 Lower: 38
<b>Final Maximum Height (m)</b>	Upper: 45.4 Lower: 44.4
<b>Maximum Storage Capacity (tons/month)</b>	Upper: 64 000 Lower: 96 000
<b>Total Volume Already Deposited (Mm<sup>3</sup>)</b>	Upper: 10,0 Lower: 14.9
<b>Life of TSF (year)</b>	Upper: 2046 @1,5/year Lower: 2060 @1,5m/year



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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. All the FoS are above the required limits and thus no mitigation measures were required.  
(KP Reference: RI301-00840/06 Rev B, 21 September 2022)

### Dam Breach Assessment

Assessment completed in 2022  
(KP Reference: RI301-00840/06 Rev B, 21 September 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 2022 available

Mandatory Code of Practice (MCOP) document No: RI301-00726/07 is in place (dated July 2022)

### Design Basis Report (DBR)

Version 2022 available  
(KP Reference: RI301-00726/27 Rev 0, 24 October 2022)

### Environmental Management System

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

The initial Environmental Management Programme (EMPr) is dated 2011.

### Surveillance:

#### Surveillance Frequency

Daily by the Operator and monthly 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  
 AquaSense Retrofit piezometers (IoT device)

**RISK MANAGEMENT /  
 EMERGENCY PREPAREDNESS:**

**Risk Assessment**

Annual Risk Assessment (Failure Mode Effect Analysis and 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

**Site Specific Emergency Preparedness & Response Plans (EPRP)**

Version 2023 available

Annual emergency mock drill for a catastrophic TSF failure – undertaken on 20 July 2023 with SSW employees, contractors, local Disaster Management teams, first and second responders.

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: 20360027-341339-2, April 2021)

**Closure Costing**

Adequate financial capacity in place  
 Financials prepared by Golder Associates (Golder Reference: 20447293-349381-4, December 2021)

**Asset Insurance Cover**

In place – July 2022 to June 2023 (currently undergoing renewal)



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## Independent Reviews:

### Independent Tailings Review Board (ITRB)

18 July 2022 with no material concerns identified

### Future ITRB Review

2025

### Performance Reviews

Annual and quarterly reports with inspections completed by EoR  
(KP Reference: RI301-00726/07 Rev 0, 14 April 2023)

### Dam Safety Review (DSR)

Carried out by an independent third party in 2019/2020 with no material findings  
(KP Reference: 301-00840/02-003 Rev 1, February 2020)

Next review scheduled for 2025



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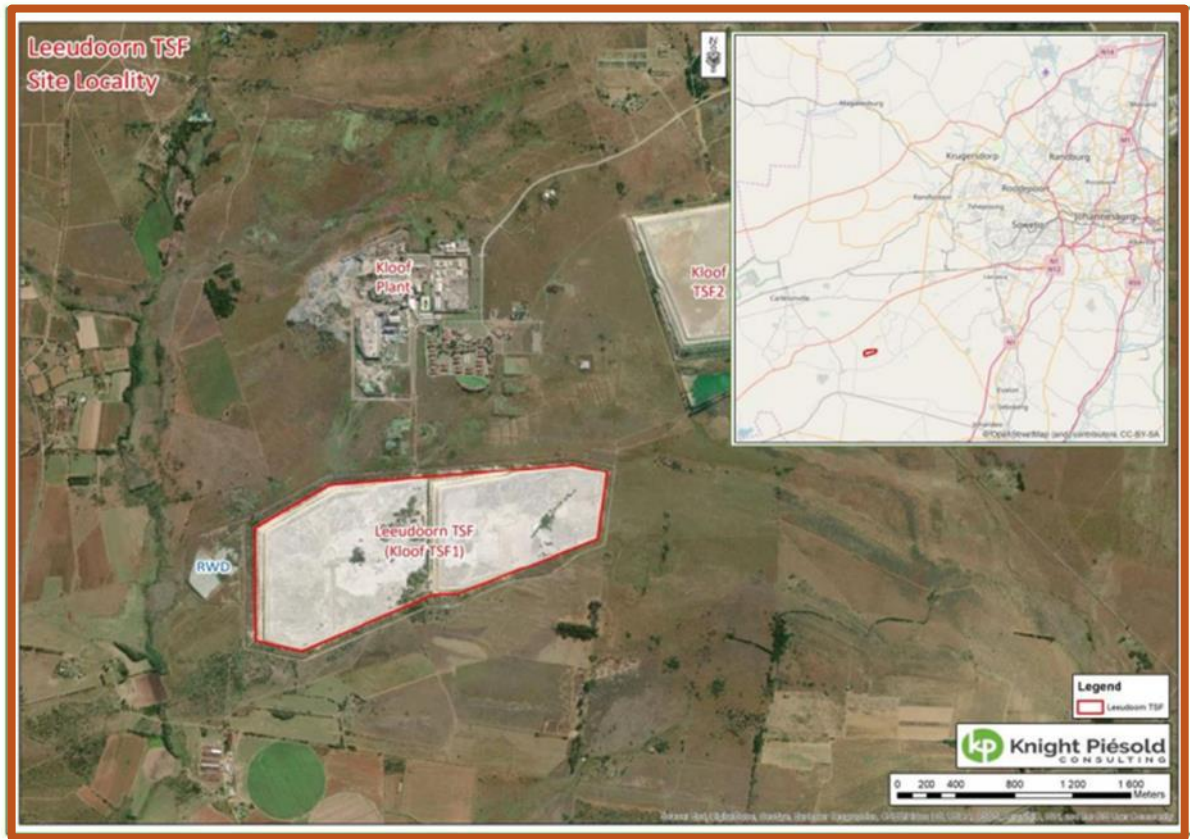


Figure 1: Layout of Leeudoorn TSF

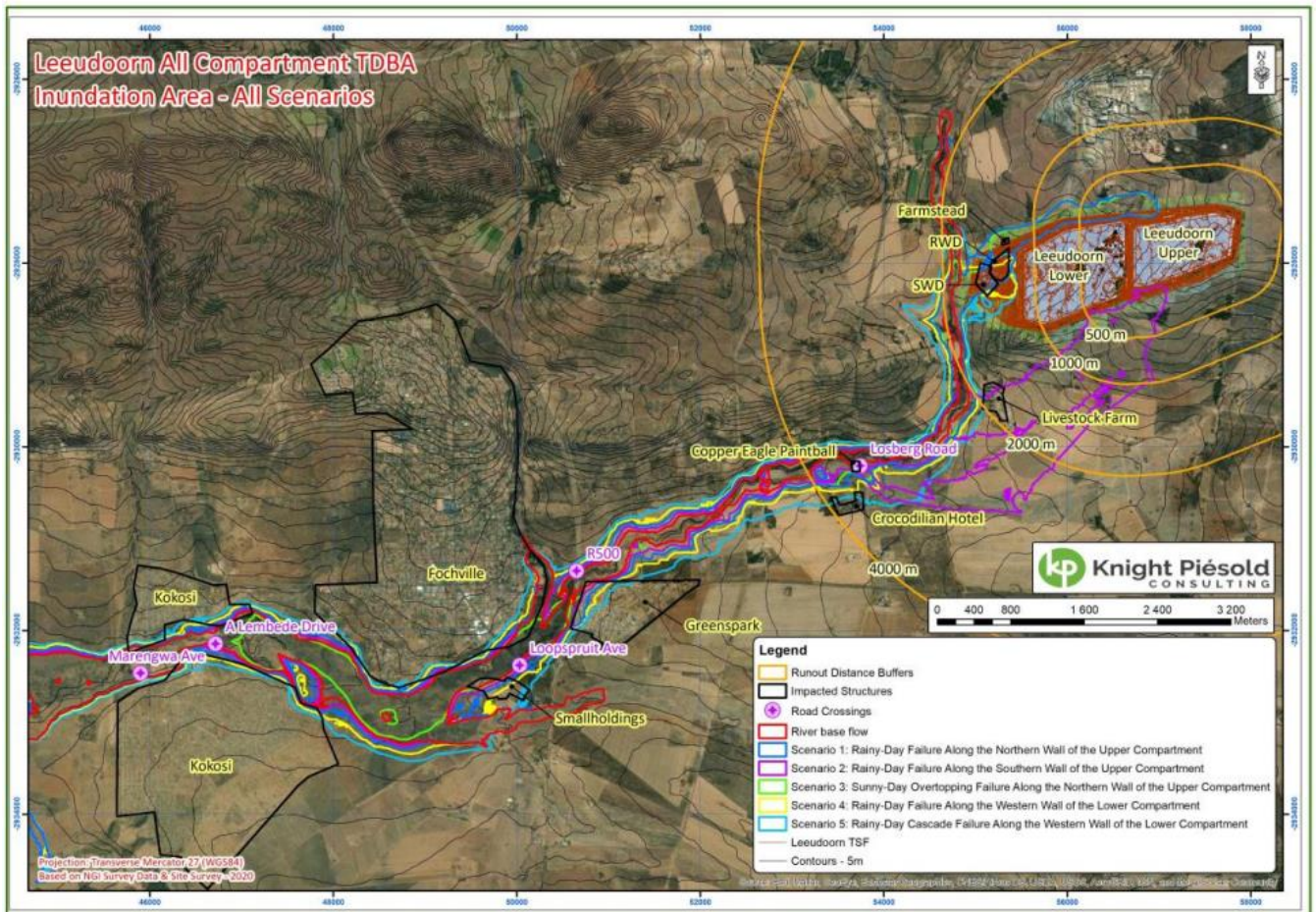


Figure 2: Consolidated view of all scenarios inundations boundaries



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