



ECSCA and SACNASP Accredited

NEXT GENERATION TAILINGS – OPPORTUNITY OR RISK?

24-25 OCTOBER 2023 CONFERENCE
26 OCTOBER 2023 TECHNICAL VISIT
Emperors Palace, Johannesburg

Supported by SAIEG



In partnership with MMA and SAICE



SAIMM
THE SOUTHERN AFRICAN INSTITUTE
OF MINING AND METALLURGY



Preliminary Programme

Conference Day 1 – Tuesday 24 October 2023 Conference Room Fabia 1 and 2

07:30–08:00	Registration Opens & Early Morning Refreshments	11:30–11:50	Effect of clay minerals on deposition and safety of tailings storage facilities ¹ A.J. Vietti, and ² N.C. Steenkamp, ¹ Independent Consultant ² Vietti Surrytec (Pty) Ltd, South Africa
08:00–08:10	Welcome and Opening by Conference Chairperson A. Coetzee, Impala Platinum Holdings Limited, South Africa	11:50–12:05	Towards the philosophical understanding of the engineering processes involved in the lifecycle of a tailings storage facility G.C. Howell, and N.G. Macfarlane, SRK, South Africa
08:10–08:15	Safety Briefing, Venue Official	12:05–13:00	Lunch
08:15–08:30	SAIMM Presidential address W.C. Joughin	SESSION 2: TSF Design and Operations Session Chair, G. Howell, SRK, South Africa	
08:30–09:10	Panel Discussion: GISTM Roll out across the Southern African Mining Industry L. De Koning, Fraser Alexander	13:00–13:30	Keynote: ICMM's Comprehensive Pathway to Sustainable Mining: Integrating Global Tailings Management and Innovative Reduction Strategies T.C. Matus, International Council on Mining and Metals, United Kingdom
SESSION 1: TSF Design and Operations Session Chair, L. Spies, SRK, South Africa		13:30–13:40	Knight Piesold 
09:10–09:30	GISTM Topic V – A comprehensive approach to implementation I. Aucamp, Equispectives Research and Consulting Services, South Africa	13:40–14:00	A stochastic modelling application to tailings planning and management using muk3d and Goldsim, M. Palape, C. Cooper, and S. Ogude Chambert MineBridge EurAfrica (Pty) Ltd., South Africa
09:30–09:50	Geotechnical centrifuge modelling of undrained triggers of tailings dam instability P.A. Crous, and S.W. Jacobsz University of Pretoria, South Africa	14:00–14:20	Why structural mapping is very important for Tailings Storage Facility (TSF) reviews ¹ B. Millstead, ² K.L. Morton, and W.L. van Heerden, ¹ BM Geological Services, ² KLM Consulting Services Pty Ltd, South Africa
09:50–10:10	Ambient seismic noise for slope stability monitoring ¹ T. De Wit and ² M. Rohwer, ¹ Institute of Mine Seismology, Australia, ² South Africa	14:20–14:30	Fraser Alexander 
10:10–10:30	The use of thermal imagery and satellite data to observe tailings seepage and water risk K.L. Morton, W.L. van Heerden, KLM Consulting Services Pty Ltd, South Africa	14:30–14:50	Afternoon Refreshments and Networking
10:30–10:50	Mid-morning Refreshments and Networking	14:50–15:10	Framework Development for sustainable mine wastewater treatment plant: A case study for a zinc concentrator company Hansen Tatalife T. Mkhaliphi, and W. Bam Stellenbosch University, South Africa
10:50–11:10	A review of geostatic stress measurements in mine tailings, Y. Narainsamy, and S.W. Jacobsz, University of Pretoria, South Africa		
11:10–11:30	Evaluation of legacy tailings storage facilities using a fault and event trees analysis approach to assess failure modes, and sensitivity analysis to identify and prioritise remedial action H.J.H. Otto, WSP, South Africa		



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15:10-15:30	Determination of low environmental wad and free cyanide concentrations in tailings using Mintek lab cynoprobe D.T. Maiga, K.E. Mudzanani, and T.T. Phadi, <i>Mintek, South Africa</i>	08:40-08:50	SRK Consulting 
15:30-15:50	Application of full-function plate and frame filters in tailings dewatering: A case study approach G. Maré, <i>Enprotec, South Africa</i>	08:50-09:10	Perspective on the use of mine tailings for geopolymer synthesis in the context of South Africa, F.J. Doucet, <i>Council for Geoscience, South Africa</i>
SESSION 3: Environmental Impact of Tailings Session Chair, L. De Koning, Fraser Alexander, South Africa		09:10-09:30	Production of silica and alumina nanoparticles from South African coal fly ash, ¹ R. McCondochie, ¹ E.M. van der Merwe, ² F.J. Doucet, ³ M. Aphane, ¹ University of Pretoria, ² Council for Geoscience, ³ UNISA, South Africa
15:50-16:10	Geochemical dynamics of chromite in platinum group minerals' tailings ¹ S. Motha, ¹ S. Mokhahlane ¹ N. Madlakana, and ² T.T. Kanyongolo, ¹ University of the Witwatersrand, ² Two Rivers Platinum, South Africa	09:30-09:50	Thermochemical treatment as a promising process for the valorisation of diamond mine residues ¹ B. Castleman, ² F.J. Doucet, ¹ E.M. van der Merwe, ¹ University of Pretoria, ² Council for Geoscience, South Africa
16:10-16:30	Assessing the diversity, abundance and conservation status of odonates along a perennial stream in the mining watershed of north-central Zambia S. Mwelwa, and T. Johnson, <i>The Copperbelt University, Zambia</i>	09:50-10:10	A case study of mineral processing and metal extraction from typical Witwatersrand and Greenstone tailings ^{1,2} S.X. Makamu, ¹ G. Ndlovu, ¹ S. Ndlovu, and ¹ J. Maluleke, ¹ Mintek, ² University of the Witwatersrand, South Africa
16:30-16:50	SANS Presentation A. Copeland, <i>Knight Piesold Consulting</i>	10:10-10:30	Mid-morning Refreshments and Networking
16:50-17:00	Day 1 wrap-up and close	10:30-10:50	Synthesis of silica nanoparticles from mine residues from the South African Bushveld Igneous complex ¹ S. Mohamed, ² E.M. van der Merwe, ¹ F.J. Doucet, ¹ Council for Geoscience, ² University of Pretoria, South Africa
17:00-18:00	Time at Leisure	10:50-11:10	Functionalising mineral sands mine waste: The importance of characterisation S.G. Govender, T. Kotsiopoulos, J. Broadhurst, and M. Becker, <i>University of Cape Town, South Africa</i>
18:00-21:00	Dinner: Braza Restaurant, Emperors Palace	11:10 - 11:30	Synthesis of the geopolymer to valorise mine tailings from the chalcopyrite-based mining operations K.E. Mudzanani, D.T. Maiga, and T.T. Phadi <i>Mintek South Africa</i>
Wednesday, 25 October (Conference Day 2) Conference Room Fabia 1 and 2		11:30-11:40	IHC Mining 
07:30-08:00	Registration Opens & Early Morning Refreshments	11:40-12:40	Lunch
08:00-08:05	Welcome and Opening by Conference Chairperson, A. Coetzee		
08:05-08:10	Safety Briefing, Venue Official		
SESSION 4: Tailings as a Resource Session Chair, M. Valenta, Metallicon, South Africa			
08:10-08:40	Keynote: Investors insights into Tailings Management A. Matthews, <i>The Church of England Pensions Board, United Kingdom</i>		



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SESSION 5: Management and application of technology

Session Chair, K.L. Morton, KLM Consulting Services Pty Ltd, South Africa

- 12:40-13:00 **Data management and insights for effective tailings storage facility management**
D. Harvey, *Knight Piésold (Pty) Ltd., South Africa*
- 13:00-13:20 **An integrated risk assessment and management framework for mine tailings storage facilities**
S. Lacasse, Z. Liu, and L. Piciullo, *Norwegian Geotechnical Institute, Norway*
- 13:20-13:40 **Developing a mine waste atlas for the Northern Cape, South Africa**
B. Koovarjee, M. Becker, J. Von Holdt, M. Cole and J. Petersen, *University of Cape Town, South Africa*
- 13:40-14:00 **Afternoon Refreshments and Networking**
Session Chair, A. Strauss, Knight Piesold, South Africa
- 14:00-14:20 **Deep dive into tailings dam failures and associated learnings**
S. Maharaj, *Impala Platinum Holdings Limited, South Africa*
- 14:20-14:40 **From Tailings Operator to Consultant**
M. Germishuys, *Knight Piésold (Pty) Ltd, South Africa*
- 14:40-15:00 **The importance of remote sensing technology based on satellite radar interferometry, InSAR as a strategic geotechnical monitoring tool**
A. Mkandla, *TRE ALTAMIRA s.r.l., South Africa*
- 15:00-15:15 **Conference Close**
Conference Chairperson
A. Coetzee, *Impala Platinum Holdings Limited, South Africa*

Thursday, 26 October (Technical Visit) Evander/Elikhulu TSF Technical Visit Programme: 09h00 to 12h30

- Meet at Emperors Place Convention Centre at 07:00
- Site specific induction at the Operator's Office/entrance to Elikhulu TSF.
- Drive to various look-out positions including RWD, Silt Traps, Catwalks and deposition operations. Stop at division wall overlooking the construction site and return along solution trench to office area.
- Drive to Leslie Remining operations (+- 6km) and observe critical remining operations.
- Refreshments to be served at Leslie Remining Boardroom.
- Return to Emperors Palace between 14h00-15h00.

Thursday, 26 October (Technical Visit 2) Ntshovelo Colliery Technical Visit Programme: 09h00 to 12h30

- Meet at Emperors Place Convention Centre at 07:00
- Sign in as visitor at Ntshovelo mine entrance
- Site specific induction and brief presentation at Plant Office
- Divide into groups of 15 for plant visit
- Hosts to accompany groups to various sections of the CHPP
- Return to plant offices where refreshments will be served
- Return to Emperors Palace between 14h00-15h00.

**The technical visit is not part of the conference registrations. Register separately to attend the technical visit.*