

MINE TAILINGS SEMINAR AND CONE PENETRATION TESTING WORKSHOP

6 – 8 DECEMBER 2022 | THEATRE AUDITORIUM, OCEANS INSTITUTE,
THE UNIVERSITY OF WESTERN AUSTRALIA, PERTH, WESTERN AUSTRALIA

This event comprises a one-day cone penetration testing (CPT) workshop and a two-day seminar on the management, operation and relinquishment of tailings storage facilities (TSF). The event will be held as a traditional physical event, as well as online, facilitating participation from anywhere in the world.

Who should attend:

The seminar and workshop are directed at personnel with responsibilities in mine planning and design, and in developing feasibility studies for mine completion and decommissioning; indeed to all mine managers, superintendents and operators, regulators, as well as consultants involved in the management of TSFs.

MINE TAILINGS SEMINAR 6-7 DECEMBER 2022

The ACG looks forward to hosting the ACG Mine Tailings Management Seminar in Perth, Western Australia, as well as an online event.

This two-day seminar will address the emerging challenges in the day-to-day management of TSFs and the obligation to comply with the relevant operating standards and closure requirements. It will explore the conditions and obstacles encountered in everyday mining, and innovative solutions utilised in different mining operations and environments; and will include case studies, specialist presentations and discussion sessions. The Global Industry Standards for Tailings Management ([GISTM](#)) will also be discussed. There will be ample opportunity for discussion and questions from the participants.

Facilitator:



Professor Andy Fourie
Professor of Civil & Mining Engineering and
Program Director - Future Tails,
The University of Western Australia

Collaborating Organisations

FUTURE TAILS



CONE PENETRATION TESTING WORKSHOP 8 DECEMBER 2022

This workshop aims to provide an overview of CPT interpretation with a primary focus on tailings characterisation. The workshop will include presentations by CPT contractors on equipment and considerations useful to engineers carrying out investigations. The following topics will be covered:

- General interpretation and normalisation approaches
- Dissipation tests
- Partial drainage effects, with a focus on implications and interpretation approaches to extract useable data
- Interpretation of the state parameter from the CPT, including history of the development of techniques and current areas of ongoing refinement
- Inferring large-strain undrained shear strengths and brittleness
- Unsaturated CPT interpretation considerations
- Full flow penetrometers and vane shear testing

Facilitators:



David Reid
Research Fellow, The University of Western Australia



Professor Andy Fourie
Professor of Civil & Mining Engineering and
Program Director - Future Tails,
The University of Western Australia

See event programs overleaf

acg.uwa.edu.au/events

MINE TAILINGS SEMINAR PROGRAM* 6-7 DECEMBER 2022

MINE TAILINGS SEMINAR DAY 1 PROGRAM*	
07:30	REGISTRATION
08:30	Welcome and introduction <i>Professor Andy Fourie, The University of Western Australia</i>
08:45	Key outcomes of the industry funded TAILLIQ project <i>Professor Andy Fourie</i>
09:30	The importance of water recovery; how much can you achieve <i>Chris Lane, TSF Reviews Pty Ltd</i>
10:15	MORNING BREAK
10:45	Effective use of remote sensing for TSF monitoring and management <i>Dr Cristina Vulpe, The University of Western Australia</i>
11:30	Tailings incidents: what did we learn and do about it? A Gold Fields perspective <i>Johan Boshoff, Gold Fields Australia Pty Ltd</i>
12:15	LUNCH
13:15	Results and implications of a tailings slope stability round robin <i>Dr David Reid, The University of Western Australia</i>
14:30	Filtered TSFs: design of structural zone for stability <i>Joe Rola, SRK Consulting</i>
15:15	AFTERNOON BREAK
15:30	Rheological testing of liquefiable tailings and the application of this in dam break <i>Gordon McPhail, Water, Waste and Land</i>
16:15	Challenges and benefits of effective surface water management in the context of GISTM ALARP <i>Peter DiDonna, South32</i>
17:00	DAY ONE CLOSE

MINE TAILINGS SEMINAR DAY 2 PROGRAM*	
08:30	Risk assessments and safety cases for dams <i>Jiri Herza, HATS Consulting, and Dr Jarrad Coffey, Rio Tinto</i>
10:00	Insights into tailings mechanical behaviour from hollow cylinder testing <i>Riccardo Fanni, WSP Golder, Australia</i>
10:45	MORNING BREAK
11:15	BHP's GISTM journey <i>Justin Willis, BHP</i>
12:00	Critical earthquake loading and dam geometry for analysis of seismically induced liquefaction and deformation <i>Genevieve New, ATC Williams Pty Ltd</i>
12:45	LUNCH
13:45	Workshop Session: Challenges of addressing the expectations of the Global International Standard on Tailings Management and strategies for addressing these challenges
16:30	SEMINAR CLOSE, DRINKS AND NIBBLES

CPT WORKSHOP PROGRAM* 8 DECEMBER 2022

CONE PENETRATION TESTING WORKSHOP PROGRAM*	
08:00	REGISTRATION
08:30	Introduction <i>Dr David Reid, The University of Western Australia</i>
09:15	In situ testing: equipment, tools, and what to look out for <i>Robert Jordan, Klohn Crippen Berger</i>
10:15	MORNING BREAK
10:45	State parameter interpretation <i>Dr David Reid</i>
11:45	Mini block sampling - development and application <i>Tristan Helliwell, Black Insitu Testing</i>
12:00	LUNCH
13:00	Degree of saturation and variable rate CPT/VST <i>Tierney Boulter, ConeTec Pty Ltd</i>
13:30	Vane shear testing rate considerations, calibration chamber testing <i>Dr David Reid</i>
14:30	AFTERNOON BREAK
15:00	Sources of error in CPT tests - and solutions <i>Allan McConnell, Insitu Geotech Services Pty Ltd</i>
16:00	Discussion panel <i>All presenters</i>
17:00	WORKSHOP CLOSE



Accessing geomechanical excellence

The ACG Online Repository is an open access resource which provides free downloads of papers from ACG international mining events. Many paste and tailings related papers from past conferences are freely available to download.

Visit papers.acg.uwa.edu.au/paste

*Programs may be subject to change, visit acg.uwa.edu.au/events for updates.

MINE TAILINGS SEMINAR PRESENTERS



Johan Boshoff
Group Head of Tailings
Gold Fields Ltd

Johan graduated from the University of Pretoria in 1993. He obtained his master's degree in geotechnical engineering at the University of Pretoria in South Africa in 1998. Johan has been involved in geotechnical engineering aspects of projects for the past 25 years. Johan is a certified engineer and a fellow with Engineers Australia. His expertise includes detailed design, monitoring and project management of tailings storage facilities, mine residue stockpiles and waste rock dumps. Johan worked for Golder as a principal tailings engineer where he also fulfilled engineer of record roles for major mining companies. He joined Gold Fields in September 2019 where he is currently the group head of tailings, fulfilling the role of the discipline leader and subject matter expert for all company owned and operated facilities.



Jarrad Coffey
Principal Engineer Tailings & Dams
Rio Tinto

Jarrad has been involved with tailings management at Rio Tinto for the past 12 years, with responsibilities spanning technical support and leadership of long-term planning, projects and operations. In recent years Jarrad has developed and lead the governance and risk management programs of Rio Tinto's tailings and dams assets. This work has included the development of an integrated tailings community, dedicated tailings management team, comprehensive tailings management system and risk management processes. More broadly, his experience extends to civil and mining assets and infrastructure with specialisation in a broad variety of soil mechanics topics.



Peter DiDonna
Governance and Technical Stewardship
South32 Worsley Alumina Pty Ltd

Peter graduated from Monash University, Victoria, in 1987 as a civil engineer then completed his master's degree in soil mechanics at Imperial College, London, in 2005. After 27 years with geotechnical consulting firms in Australia, the Middle East and the UK, he joined Worsley Alumina in 2014, where he was responsible for the tailings and water

storage dams onsite. Peter provides geotechnical and operational reviews for all South32 water storage and tailings dam assets covering Australia, Brazil, USA, and South Africa.



Riccardo Fanni
Principal Tailings Engineer
WSP Golder

Riccardo is a tailings engineer with approximately 15 years' experience in the design, analysis, laboratory testing and field investigations of tailings storage facilities. In August 2019, he started a part-time doctoral study on static liquefaction in tailings in the TAILLIQ project lead by The University of Western Australia. The focus of his research is to investigate the effect that anisotropy and principal stress direction have on tailings strength under various stress paths and loading conditions.



Professor Andy Fourie
Professor of Civil, Environmental and Mining Engineering; and Program Director, Future Tails
The University of Western Australia

Andy is a professor in the Department of Civil, Environmental and Mining Engineering, and program director - Future Tails, at The University of Western Australia in Perth. He has worked at The University of Queensland and the University of the Witwatersrand. He has been a visiting professor at the University of Alberta, the Catholic University of Valparaiso in Chile and the University of Colorado in Boulder. His research is in the field of mitigating the impact of mining and municipal solid waste disposal. Andy has been involved in many industry-focused projects with current projects including An Evaluation of Tailings Storage Facilities Monitoring Technologies managed by AMIRA and funded by eight mining companies; Future Tails aimed at training, research and education to improve tailings management funded by BHP and Rio Tinto; and Evaluating Potential Static Liquefaction of Tailings to Prevent Failures, funded by six mining companies as well as the Australian Research Council.

MINE TAILINGS SEMINAR PRESENTERS



Jiri Herza
Civil and Geotechnical Engineer
Hats Consulting Pty Ltd

Jiri is a civil engineer with 20 years' international experience in dams, tailings, hydropower and geotechnical engineering including site investigations, field and laboratory testing, foundation assessment, stability modelling, embankment and gravity dam design and risk assessment, and rehabilitation of existing dams. Jiri is a member of the ANCOLD and ICOLD tailings working groups which involves preparing new tailings related guidelines.



Chris Lane
Principal Consultant
TSF Reviews Pty Ltd

Chris has a bachelor's degree in applied science (Canberra University 1975) and an MBA (Australian Graduate School of Management 2002). He has a wide variety of geotechnical experience with tailings storage facilities (TSF) covering a period of more than 35 years. He has a wide range of experience, both in Australia and overseas: UK, Asia (Indonesia, Vietnam and Malaysia), the Middle East (Egypt, Iran, Oman, Saudi Arabia and the United Arab Emirates), West Africa (Burkina Faso, Ghana, Cote D'Ivoire, Mali and Senegal), East Africa (Ethiopia, Mozambique and Tanzania), Southern Africa (Democratic Republic of Congo and South Africa), South America (Brazil, Chile, Guyana and Uruguay) and Mexico. His involvement with TSFs covers aspects of design, construction, auditing, and tailings management reviews for a large number of projects covering a range of commodities including alumina residue, bauxite residue, base metals (copper, lead and zinc), coal, graphite, gold, iron ore, magnetite, manganese, nickel (sulphide and laterite), phosphate residue, rare earth residues, uranium and vanadium. He has a major interest in in-pit tailings storage integrated waste landforms and the developing field of dry stacked tailings.



Gordon McPhail
Executive
Water, Waste and Land Australia Pty Ltd

Gordon graduated as a civil engineer at the University of the Witwatersrand in 1974. Gordon has worked as a consulting engineer to the mining industry specialising in the geotechnical and environmental aspects of mine waste management for more than 40 years and has participated in projects in Africa, Australia, as well as North and South America.



Dr David Reid
Research Fellow
The University of Western Australia

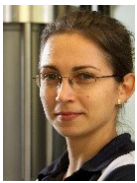
David is a tailings engineer with 15 years' experience in the design, laboratory testing, investigation, and analysis of tailings and tailings storage facilities. He is primarily involved in laboratory and in situ characterisation of tailings with respect to strength, consolidation, and liquefaction. David completed a PhD from The University of Western Australia, which involved studying the properties of polymer treated tailings and the use of centrifuges to perform consolidation testing. In November 2017, David joined the UWA's School of Civil, Environmental & Mining Engineering for an ARC Linkage project focused on static liquefaction of tailings.



Joe Rola
Principal Consultant (Mine Waste)
SRK Consulting

Joe is a civil/geotechnical engineer working on mine and power generation wastes, heap leach, and land infrastructure development projects across Australia, Asia, and Canada. Joe focuses on design/analyses, construction support, and field and laboratory investigations including geotechnical instrumentation design/installation. Joe specialises in tailings and mine waste related projects providing input from concept stage through to detailed design, construction, operations, and closure.

MINE TAILINGS SEMINAR PRESENTERS



Dr Cristina Vulpe
Research Fellow/Lecturer
The University of Western Australia

Cristina is a researcher in geotechnical engineering at The University of Western Australia. By using numerical modelling, coupled with laboratory and centrifuge testing, she provides safe and economic solutions for the deployment and management of onshore and offshore infrastructure. She studied and worked in Romania, Italy, France and Australia on a wide range of geotechnical engineering issues from quantifying the seismic response of soils in Tuscany to developing design methodologies for deep-water foundations in the North-West Shelf of Western Australia. Her current research focuses on the evaluation of tailings storage facility monitoring technologies.



Justin Willis
Principal Tailings Engineer
BHP

Justin began his career in geotechnical and tailings consulting, working in the UK and Australia on projects locally and internationally, including Africa, Asia and Europe. Justin then moved to tailings operations with BHP, managing the tailings storage facilities at Olympic Dam. Justin now works in the tailings excellence team at BHP, providing guidance and support to BHP's local and global catalogue of tailings storage facilities.

CONE PENETRATION TESTING WORKSHOP PRESENTERS



Tierney Boulter
General Manager
ConeTec Pty Ltd

Tierney has a bachelor's degree of applied science in geological engineering from The University of British Columbia, Canada. Tierney has 10 years' experience performing technical duties on several tailings storage facility projects in Canada, South America and Australia. Focusing on mining and tailings related site characterisation projects, Tierney has extensive experience with CPTu deployment (seismic, gamma, resistivity), undrained shear strength profiling, drilling and sampling (mud rotary and sonic techniques) and various geophysical testing methods. Tierney joined ConeTec in 2012 and has been general manager of ConeTec's Australian operations since February 2020.



Robert Jordan
Geotechnical Engineer
Klohn Crippen Berger

Robert is a senior geotechnical engineer based in Klohn Crippen Berger's Brisbane office. He graduated in 2014 with a degree in geological engineering and a minor in commerce from The University of British Columbia and is a registered professional engineer in Canada, Australia, and PNG. Robert has more than eight years' experience in tailings site investigation, data analysis, and project management, specialising in tailings and soft soils. Robert managed and conducted numerous onshore and nearshore site investigation projects in the Alberta Oilsands, North America, PNG, and Australia.



Allan McConnell
Founder
Insitu Geotech Services Pty Ltd

Allan is a geotechnical engineer with over 50 years' experience in Australia, South East Asia and the Pacific. He is the founder of the company Insitu Geotech Services (IGS). Allan is known for his past consulting work on major projects including many on soft soil sites, and for his passion-driven 'crusade' to reduce risk and uncertainty in geotechnical engineering. It is this passion that led to the evolution of IGS. Allan is a fellow of Engineers Australia, a registered engineer in Queensland, a long-term committee member of the Australian Geomechanics Society, and a committee member of the Queensland Tailings Group. He was chair of the 2015 ISC'5 International Site Characterisation Conference on the Gold Coast. During his time as a consultant, Allan won three prestigious ACEA Excellence Awards, the Sole Practitioners Award, and the President's Award. He presented a paper on the IGS-developed 3MPa cone and participated in a focus discussion on CPT uncertainty at the CPT'22 Conference in Bologna Italy in June 2022.

To register online with credit card payment, go to acg.uwa.edu.au/register

CONTACT DETAILS

Please print. *denotes mandatory fields.

*Title (Mr, Mrs, Miss, Ms, Dr, Prof., other) _____

*Family Name _____

*First Name _____

Preferred Name _____

*Position _____

*Organisation _____

Mine/Dept _____

*Address _____

Phone _____

Mobile _____

*Email _____

*All confirmations/event updates will be sent via email.

I am attending this event in-person.

Please notify us below of any special dietary requirements.

The events authorised attendee list is made available to event attendees, who may contact you, including electronically.


I give permission for my details to be included in the event attendee list.

I give permission for the ACG to add me to their communications list*.

I require an invitation letter for visa purposes (please forward a copy of your passport information page). For more information regarding Australian visas, please visit immi.homeaffairs.gov.au/visas

I give permission for Future Tails to add me to their mailing list.

*Update your communication preferences at acg.uwa.edu.au/acgcommunication/

 Please advise your LinkedIn profile.
[linkedin.com/in/](https://www.linkedin.com/in/) _____

By submitting this registration, I accept the Terms and Conditions, available at acg.uwa.edu.au/disclaimer

Mine Tailings Seminar (2208) 6-7 December 2022

	Standard Paid after 1 Nov 2022	
Standard	<input type="checkbox"/>	1980
ACG Affiliate†	<input type="checkbox"/>	1760
Student^	<input type="checkbox"/>	660

Cone Penetration Testing Workshop (2211) 8 December 2022

	Standard Paid after 1 Nov 2022	
Standard	<input type="checkbox"/>	990
ACG Affiliate†	<input type="checkbox"/>	770
Student^	<input type="checkbox"/>	330

TSF Seminar and CPT Workshop 6-8 December 2022

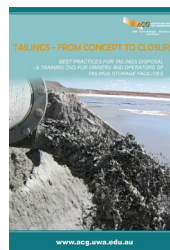
	Standard Paid after 1 Nov 2022	
Standard	<input type="checkbox"/>	2750
ACG Affiliate†	<input type="checkbox"/>	2310
Student^	<input type="checkbox"/>	770

† Check acg.uwa.edu.au/corporate-affiliates

^ Students are required to provide proof of current full-time enrolment.

CRICOS Code: 00126G

The Australian Centre for Geomechanics, The University of Western Australia applies restrictions on recording the proceedings of ACG Mine Tailings Seminar and Cone Penetration Testing Workshop, 6-8 December 2022. All unauthorised audio recording, video recording and photography or transmission of the ACG online event material, data or information is expressly prohibited.



Tailings from Concept to Closure training video is freely available to stream online at:

acg.uwa.edu.au/tailingstrainingvideo

PAYMENT

Total payment AUD _____

Payment to be received by 2 December 2022. All bank fees are the responsibility of the registrant. All prices include GST where applicable.

ABN 37 882 817 280

Online (Preferred)

To register and pay via Visa or Mastercard, go to acg.uwa.edu.au/register

Electronic funds transfer on invoice (purchase order required)

Please return this completed form and your purchase order to info-acg@uwa.edu.au and the ACG will send you an invoice with payment details included.

Registration and PO to be submitted together.