The series of International Conferences on Mine Closure is a fixture on the calendars of many mining professionals, providing topical and high quality papers and presentations on a range of topics of immediate interest and relevance. A key feature of the conference series is the diversity of disciplines and expertise that come together to focus on the pressing issues facing the mine closure community globally.

KEYNOTE SPEAKERS INCLUDE:

Professor Angus Morrison-Saunders  
*Professor, Environmental Management*  
*Edith Cowan University*

Laura Tyler  
*Asset President Olympic Dam and Chief Geoscientist, BHP*

Dr Benjamin Warr  
*Founder & Director, Betterworld Energy Ltd, Zambia*

Professor Laco Mucina  
*Iluka Chair in Vegetation Science and Biogeography, Harry Butler Institute, Murdoch University*

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**Earlybird registration ends 22 July 2019!**

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www.mineclosure2019.com
KEYNOTE: The action is where the social is! The ecosystem services concept and other ideas for enhancing stakeholder engagement in integrated mine closure planning

A Morrison-Saunders, Edith Cowan University, Australia, and North-West University, South Africa

KEYNOTE: Ecology, biodiversity and mining: science solving the challenges

L Mucina, Harry Butler Institute, Murdoch University, Australia

KEYNOTE: Why should we 'think big' on closure?

L Tyler, BHP, Australia

KEYNOTE: Designing contextual, efficient and resilient land regeneration systems for mine closure under conditions of extreme uncertainty and resource constraints

B Warr, BetterWorld Energy Ltd, Zambia

Why mines should look at total life to achieve tailings facility closure

SE Atken, JP Burr, Beca Ltd, New Zealand

Environmental assessment and reclamation of abandoned mine closure dumps in the Northwest Caucasian

AV Alekseenko, Saint Petersburg Mining University, Russia

Mine reclamation period to successfully meet criteria in Indonesia

F Amanah, T Yunanto, Ministry of Energy and Mineral Resources, Republic of Indonesia

Exploring abandoned mines through a public lens

A Ashby, Edith Cowan University, Australia

Elliott Lake, Ontario uranium mines: a legacy perpetual care case study

D5 Berthelot, BHP, Canada; D Place-Hoskie, D Willems, K Black, BHP, USA

Progressive release of security to incentivise and fund closure

KA Bocking, Golder Associates Ltd, Canada; K Lewis, Lupin Mines Inc., Canada

Will climate change increase the risks of serious performance loss of engineered covers due to tree colonisation in Canada?

YD Botula, M Guilttonny, B Bussière, Université du Québec en Abitibi-Témiscamingue, Canada; E Bresson, Polytechnique Montréal, Canada

Whole-of-landform erosion assessment using unmanned aerial vehicle data

M Brainbridge, S Mackenzie, Mine Earth Pty Ltd, Australia; M Lyons, T Clarke, Regis Resources Ltd, Australia; B Bow, Atlas Iron Pty Ltd, Australia

Introducing the International Council on Mining and Metals’ Integrated Mine Closure: Good Practice Guide

D Brock, International Council on Mining and Metals, UK; B Weeks, Golder Associates Pty Ltd, Australia; J Heyes, BHP, Australia

Financial concepts for mine closure: information document

D Brock, International Council on Mining and Metals, UK; M Slight, Mike Slight & Associates, Australia; C McCombe, Minerals Council of Australia, Australia

The application of an agro-hydrological model for a data-limited closure study of a bauxite mine in Australia

HH Bulcock, J Heaslop, Klohn Crippen Berger, Australia

Mine closure plans: assumptions and optimism

G Byrne, Niboi Consulting, Australia

Modelling the long-term water balance of a pit lake with recreational end uses

A Carlino, Golder Associates Pty Ltd, Australia; CD McCullough, Mine Lakes Consulting, Australia

Life cycle assessment of tailings management options: a conceptual case study in Western Australia

A Carneiro, AB Fourie, The University of Western Australia, Australia

Using aerial drones to select sample depths in pit lakes

DN Casterndyk, BJ Straight, JC Voorhis, MK Somogyi, Golder Associates Inc., USA; WE Jepson, Montana Department of Environmental Quality, USA; BL Kucera, Thompson Creek Mining Company, USA; L Pilgrim, D Rae, Wood PLC, Canada

A case for consequence categories to guide the closure design of landforms

P Chapman, A Kemp, Golder Associates Pty Ltd, Australia

Innovative community engagement for the quantitative risk assessment for a mine closure and reclamation plan

L Christoffersen, SRK Consulting (Canada) Inc., Canada; S Reinecke, M Shoesmith, Stratos Inc., Canada; E McKennirey, Crown-Indigenous Relations and Northern Affairs Canada, Canada

Maximising post mining land use: Queensland Government reforms

S Cooper, Queensland Government, Australia

Applied phosphorus has long-term impacts on vegetation responses in a restored jarrah forest

MI Daws, University of Reading, UK; AH Grigg, Alcoa of Australia, Australia; RJ Standish, Murdoch University, Australia; M Tibbett, University of Reading, UK

Geotechnical considerations for open pit mine closure

J de Bruyn, D Prado, J Mylvaganam, D Walker, SRK Consulting, Australia

Geotechnical risk management for open pit mine closure: a sub-arctic and semi-arid case study

PJH de Graaf, The De Beers Group of Companies, South Africa; M Desjardins, De Beers Canada Inc., Canada; P Tsheko, Anglo American Coal, South Africa

Six years of cover performance data for leading practice store-and-release cover trials at Century Mine

PL Defferrard, New Century Resources, Australia; T Rohde, SGM Environmental, Australia

Combining seed burial, land imprinting and an artificial soil crust dramatically increases the emergence of broadcast seed

MP Dobrowolski, Iluka Resources Ltd, and The University of Western Australia, Australia

The social aspects of mine closure: the elephant in the room

J Edwards, A Maritz, SRK Consulting (South Africa) (Pty) Ltd, South Africa

Remediation objectives: the key to successful mine closure

M Fawcett, T Laurencont, Coffey Ltd, Australia

Understanding the Latrobe Valley mine rehabilitation strategy and why it is essential

A Feigl, B Davis, A Kirwan, B Millsom, M Mozina, E Rampal, State Government of Victoria, Australia

Post-mine land use trends in the New South Wales and Queensland coal industry

P Fridell, C Pearson, ERM Australia Pty Ltd, Australia; F Woskoboenko, HRL Technology Group Pty Ltd, Australia; R Brooker, M Schenkel, ENGIE Australia Pty Ltd, Australia

Coal ash waste categorisation to determine a regulatory capping profile for coal ash pond rehabilitation

K Fogarty, M Kragt, B White, The University of Western Australia, Australia

A demonstration of the cessation of spontaneous combustion in a coal overburden spoil pile

A Garvie, SRK Consulting (Australasia) Pty Ltd, Australia; K Donaldson, B Williams, Flinders Power, Australia; J Chapman, SRK Consulting (Australasia) Pty Ltd, Australia

*As of 23 May 2019. Accepted papers list is subject to change. Review process is ongoing. For updates, please visit www.mineclosure2019.com

www.mineclosure2019.com
Key considerations that can make or break a closure-focused groundwater monitoring program WJ Gemson, TR Weaver, BL Heemink, ERM Australia Pty Ltd, Australia

Repurposing closure cost estimation tools: a Gold Fields case study of the benefit of integration R Getty, SRK Consulting (Australasia) Pty Ltd, Australia; D Caporn, Gold Fields Ltd, Australia; D Kyan, J Beltran, SRK Consulting (Australasia) Pty Ltd, Australia

Does the integration of environmental impact assessment and mine closure planning deliver effective mine closure plans in Western Australia? R Getty, SRK Consulting (Australasia) Pty Ltd, Australia; A Morrison-Saunders Edith Cowan University, Australia, and North-West University, South Africa

Rio Tinto’s framework for evaluating risks from low-sulphur waste rock R Green, Rio Tinto, Australia; C Linklater, SRK Consulting, Australia; S Lee, L Terrusi, K Glasson, Rio Tinto, Australia

The Pardoo Mine: closure planning, implementation and five years of performance-monitoring data S Gregory, S Mackenzie, Mine Earth Pty Ltd, Australia; B Bow, Atlas Iron Pty Ltd, Australia

Hydrogeological modelling to inform closure planning for Hazelwood mine R Gresswell, G Foley, GHD Pty Ltd, Australia; J Faithful, ENGIE Australia Pty Ltd, Australia

Integrated life-of-mine waste characterisation, scheduling, placement planning and quality control to achieve progressive closure: Martabe mine as a case study of operational practice and practical planning strategy at a complex multi-pit operation SK Grohs, PT Agincourt Resources, Indonesia; S Pearce, Mine Environment Management, Wales

Using geomorphology and landscape evolution models to enhance landscape design G Hancock, The University of Newcastle, Australia; J Martin-Duque, Complutense University, Spain; G Willgoose, The University of Newcastle, Australia

Back to the future: coal mine closure at 78°N AO Harstad, PS Cappelen, Norwegian Geotechnical Institute, Norway

Applying a regional land use approach to mine closure: opportunities for restoring and regenerating the mine-disturbed regional landscapes R Hattingh, DJ Williams, G Corder, The University of Queensland, Australia

Strengthening BHP’s closure framework: a strategy to realise enduring value J Heyes, T Cooper, BHP, Australia

Bang for your buck: revegetation of arid sites using coloniser species B Horner, G Christie, Succession Ecology, Australia; B Williams, Flinders Power, Australia; AT Scanlon, J Lemon, Succession Ecology, Australia

Acceptable erosion rates for mine waste landform rehabilitation modelling in the Pilbara, Western Australia EJ Howard, RJ Loch, Landloch Pty Ltd, Australia

Ecological engineering and mineral transformation of tailings are essential to successful tailings rehabilitation L Huang, Y Frang, Y Liu, S Wu, The University of Queensland, Australia; D Parry, Rio Tinto, and The University of Queensland, Australia

How can frameworks inform water quality objectives for the closure of the Ranger mine? M Iles, Energy Resources of Australia, Australia

Biological manganese removal from mine drainage in a fixed-bed bioreactor at pilot scale J Jacob, BRGM, France; I Raignault, Rio Tinto SA, France; F Battaglia-Brunet, BRGM, France; C Mailhan-Muxi, Rio Tinto SA, France; J Engevin, M Djemil, BRGM, France

The analysis and validation of landform stability using unmanned aerial vehicles J Jacob, BRGM, France

Tailings storage facilities store-and-release cover design for the Cobar region NP Jamson, TK Rohade, SGM Environmental Pty Ltd, Australia

Discounting social mine closure planning M January, 3 Circle Consulting, South Africa

Current practice and innovation in decommissioning and rehabilitation on Barrow Island: applications for mine closure DA Jasper, Stantec, Australia; P Hoffman, Chevron, Australia; NC Banning, Stantec, Australia; GS Wiseman, Stantec, Canada; KE Stanbury, SJ Amison, GR Henderson, Stantec, Australia

Relinquishment criteria landform verification: quality accreditation and quality control using unmanned aerial vehicles PL Jones, Flinders Power, Australia; C Franklin, CLD Mining, Australia

The analysis and validation of landform stability using unmanned aerial vehicles J Kelcey, Astron Environmental Services, Australia; D Blaxland, Gold Fields Australia Pty Ltd, Australia; B Smith, A Gove, Astron Environmental Services, Australia

Identifying industry practice, barriers, and opportunities for mine rehabilitation completion criteria in Western Australia ME Kragt, A Manero, The University of Western Australia, Australia

Mine site rehabilitation conditions in Western Australia ME Kragt, The University of Western Australia, Australia; C Lison, ARC Centre for Mine Site Restoration, Australia; A Manero, J Hawkins, The University of Western Australia, Australia

Spatial data-based closure costing integrated with life-of-mine planning: a key enabler facilitating value realisation P Kumari, Anglo American, South Africa; M Cooper, Deswik, South Africa

Harnessing risk to guide mine rock stockpile closure and long-term cost reduction SC Lamoureux, O’Kane Consultants Pty Ltd, Australia; MA O’Kane, O’Kane Consultants Inc., Canada

Problematic pit: closure liability to operational opportunity CL Latham, C Lazo-Skold, Rio Tinto, Australia

Social provisioning for mine closure T Laurentont, Coffey Ltd, Australia; T Garrood, Newcrest Mining Limited, Australia; P Vidley, M Fawcett, Coffey Ltd, Australia

A pore-scale numerical study on the effect of pore distribution characteristics on effective oxygen diffusion coefficient in soil cores G Li, L Zhan, Zhejiang University, China; S Dai, Georgia Institute of Technology, USA

Flash flaming technology shows promise to improve seed-based rehabilitation outcomes E Ling, AL Guzzoni, TE Erickson, The University of Western Australia, Australia; DJ Merritt, Department of Biodiversity, Conservation and Attractions, Australia; M Renton, The University of Western Australia, Australia

A stakeholder advisory committee as a mechanism to guide the preparation of a regional mine rehabilitation strategy... two years in, what have we learnt? S Lloyd, Latrobe Valley Mine Rehabilitation Advisory Committee, Australia

*As of 23 May 2019. Accepted papers list is subject to change. Review process is ongoing. For updates, please visit www.mineclosure2019.com

www.mineclosure2019.com
Target ecosystem assessment model: a process to develop target revegetation prescriptions in the mine closure landscape
B Logan, V Futuransky, S Dietrich, BH Flemming, V Wilson, L Waterman, Paragon Soil and Environmental Consulting Inc., Canada

Developing a rehabilitation standard for landform stability for a uranium mine in northern Australia
JBC Lowry, MJ Saynor, Department of the Environment and Energy, Australia

Don’t fight it, embrace it: harnessing ecological processes in mine site revegetation
P Lu, J Meek, ERA Pty Ltd, Australia

Mine rehabilitation in the Latrobe Valley, the start of a long journey: the Commissioner’s role
R Mackay, R Hastie, H Lilley, M Mathew, Latrobe Valley Mine Rehabilitation Commissioner, Australia

Best practice in the definition of mine completion criteria and monitoring: a review of three case studies in Western Australia
A Manero, The University of Western Australia, Australia; E Stock, Murdoch University, Australia; RE Young, Curtin University, Australia; RJ Standish, Murdoch University, Australia

Engineering a path to relinquishment: an Australian case study in ecological conservation
R Marten, C Bagnall, BHP, Australia

Geomorphic rehabilitation in Europe: recognition as best available technique and its role in LIFE projects
JF Martin-Duque, Complutense University, and IGEO Geosciences Institute, Spain; I Zapico, M Tejedor, C Martin-Moreno, Complutense University, Spain; JM Nicolau, University of Zaragoza, Spain

Towards a common practice in the selection of earthquake ground motions for design of critical mining facilities at closure and post-closure
M Martinez, Golder Associates, Chile; A Hull, Golder Associates, USA

Ecologically guided restoration engineering to improve mine site restoration success in the Pilbara region of Western Australia
M Masarei, AL Guzommi, The University of Western Australia, Australia; DJ Merritt, Department of Biodiversity, Conservation and Attractions, Australia; TE Erickson, The University of Western Australia, Australia

Process-based erosion modelling for shoreline rehabilitation design of a coal mine pit lake
CD McCullough, Mine Lakes Consulting, Australia; A van Rooijen, Deltas, Australia; DS van Maren, Deltas, Netherlands

Evaporation from coal mine pit lakes: measurements and modelling
D McLannet, A Howad, B Baker, K Ahwang, J Gallant, CSIRO, Australia; S Henderson, A Hocking, BHP, Australia

Hydrochemical evaluation after mine closure of the Angelica Rubio Chico mining project
J Melgarejo, Compañía de Minas Buenaventura, Peru; P Quesada, M Samanez, Amfapas 21, Peru

Designing for success: applying ecological criteria to restoration at BHP Beenup
K Money, L Pantelic, Syrinx Environmental Pty Ltd, Australia; R Norrish, W Russell, G Price, BHP, Australia

Roy Hill waste landform design and construction process
B Miles, T Stone, Roy Hill Iron Ore, Australia; M Brainbridge, S Mackenzie, Mine Earth Pty Ltd, Australia

Environmental regulatory oversight: transitioning from an operational to rehabilitation framework
JP Miller, Department of Environment and Energy, Australia

A framework to prioritise high-risk abandoned mine features for rehabilitation in Western Australia
I Mitchell, K Hryczyszyn, T Read, Department of Mines, Industry Regulation and Safety, Australia

A simplified method to predict final void water levels
H Morgan, WRM Water & Environment, Australia; A Hocking, BHP, Australia; S Henderson, Henderson Geotech, Australia

Growth of rye grass and clover in artificial topsoils: a case study
L Mundodi, M Yellisethy, V Wong, A Walmsley, Monash University, Australia; J Missen, N Anderson, AGL Energy, Australia

A repurposing framework for alignment of regional development and mine closure
D Murphy, Golder Associates, Australia; J Fromm, R Bairstow, Pilbara Development Commission, Australia; D Meunier, Jacobs Australia, Australia

An update on the development of mine closure and reclamation standards by the International Organization for Standardization
D Murphy, Golder Associates, Australia; M Nahir, Crown-Indigenous Relations and Northern Affairs, Canada; C Didier, National Institute for Industrial Environment and Risks, France

A case study: consolidation properties of Hazelwood Power Station ash
S Narendranathan, J Anders, GHD Pty Ltd, Australia; J Faithful, ENGIE Australia Pty Ltd, Australia; N Patel, GHD Pty Ltd, Australia

Engaging stakeholders to achieve rehabilitation completion: a case study of the BHP Beenup project
R Norrish, B Lyon, W Russell, G Price, BHP, Australia

Stabilising an underground void: monolithic construction using self-consolidating concrete
A Pakula, R Preston, D Kennard, Golder Associates Ltd., Canada; C MacInnis, CIRNAC, Canada

Closure planning challenges associated with mining adjacent to large creek lines
KL Pang, CL Latham, P Barnes, F McLennagh, P Bussemaker, Rio Tinto, Australia

Case studies: mechanisms other than spillage and leaks that change groundwater quality and inhibit closure certification
TL Patterson, M Trevor, SLR International, USA

Global acid and metalliferous drainage management standard: BHP’s approach to reducing global acid and metalliferous drainage closure risk
JP Pearce, Mine Waste Management, Australia; T Cooper, J Heyes, BHP, Australia

Fragmentation analysis of waste rock: optimising waste management assessment, reducing acid mine drainage risk and identifying opportunities for metal recovery
S Pearce, Mine Environmental Management Consultants, UK; D Brookshaw, Caulmont Ltd, UK; S Mueller, Boliden Mines, Sweden; A Barnes, Geochem Ltd, UK

Analysis of dry cover systems composed of tropical soils for mining waste
G Davies, Rio Tinto, Australia

Mine rehabilitation in Western Australia: catastrophe or catalyst?
C Richards, Rio Tinto, Australia; K Dowell, Gelganyem Ltd and Gelganyem Investments Pty Ltd, Australia; G Davies, Rio Tinto, Australia
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<td>Achieving restoration targets and addressing completion criteria with remote sensing</td>
<td>C Richardson, A Grigg, Alcoa of Australia, Australia; T Robinson, Curtin University, Australia; G Wardell, Curtin University, Australia</td>
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<td>Application of a vulnerability assessment framework to evaluate potential effects of mine water discharges from Ranger Uranium Mine, Northern Territory</td>
<td>DL Richardson, G Bourke, D Rissik, GW Fisk, BMT, Australia; M Iles, Energy Resources of Australia, Australia</td>
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<td>Clarifying closure scenarios through integrated planning at Cerrejón mine in Colombia</td>
<td>J Ricaurte, Cerrejón Coal Mine, Colombia; CD Grant, Anglo American, Australia; A Freitas, Golder, Brazil; PR Botha, Anglo American, South Africa</td>
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<td>Key outcomes of functional benchmarking for waste rock landform closure at a Western Australian iron ore mine</td>
<td>S Robinson, formerly Bioscope Environmental Consulting Pty Ltd, Australia; SJ Finucane, Bioscope Environmental Consulting Pty Ltd, Australia</td>
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<td>Applying ecosystem services assessment in closure planning to enhance post-mining land use outcomes: learning from bauxite mining in Brazil and Australia</td>
<td>JCS Rosa, University of São Paulo, Brazil; A Morrison-Saunders, Edith Cowan University, Australia, and North-West University, South Africa; L Sánchez, University of São Paulo, Brazil; M Hughes, Murdoch University, Australia; D Geneletti, University of Trento, Italy</td>
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<tr>
<td>Mine closure residual risk management: identifying and managing credible failure modes for tailings and mine waste</td>
<td>J Sanders, H McLeod, A Small, Klohn Krippen Berger Ltd, Canada; C Strachotta, Klohn Krippen Berger Ltd, Australia</td>
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<td>Acid mine drainage mitigation and carbon capture in mine waste: practical assessment methods to assess the process of carbonation in mine waste storage facilities and opportunities for mine closure based on a study of the Kevitsa nickel mine, northern Finland</td>
<td>RJ Savage, Cardiff University and Geochemic Ltd, UK; S Pearce, Mine Environmental Management Consultants, UK; S Mueller, Boliden Mines, Sweden; A Barnes, Geochemic Ltd, UK; P Renforth, D Sapsford, Cardiff University, UK</td>
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<td>An interjurisdictional approach to designing residual risk policy</td>
<td>A Shrivaths, S Cooper, Queensland Government, Australia</td>
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<td>Stress testing of tailings dam designs for long-term, post-closure, erosion reduction</td>
<td>N Slingerland, NA Beier, GW Wilson, University of Alberta, Canada</td>
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<td>Quality management during closure works at the Telfer mine: a case study</td>
<td>E Smedley, Mine Earth Pty Ltd, Australia; B Stokes, M Gallacher, Newcrest Mining Limited, Australia; S Mackenzie, Mine Earth Pty Ltd, Australia</td>
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<td>Is it really over when it is over? Perception and use of post-mining sites by local communities</td>
<td>K Svobodova, The University of Queensland, Australia</td>
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<td>The multi-risk vulnerability of global coal regions in the context of mine closure</td>
<td>K Svobodova, The University of Queensland, Australia</td>
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<td>Tailings storage facility landform evolution modelling</td>
<td>H Thomson, SRK Consulting (Australia) Pty Ltd, Australia; L Chandler, Ethos Consulting, Australia</td>
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<td>Too much of a good thing: phosphorus over-fertilisation in rehabilitated landscapes of high biodiversity value</td>
<td>M Tibbett, R O'Connor, MI Dews, University of Reading, UK</td>
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<td>Mine relinquishment policy in Australia</td>
<td>CD Tiemann, Curtin University, and Independence Group NL, Australia; MC McDonald, Society for Ecological Restoration Australasia, Australia; G Middle, KW Dixon, Curtin University, Australia</td>
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<tr>
<td>Challenges for the closure and natural rehabilitation of bauxite residue disposal sites</td>
<td>O Torgersrud, Norwegian Geotechnical Institute, Norway; GD Breedveld, University of Oslo, Norway, and Norwegian Geotechnical Institute, Norway; G Okkenhaug, University of Life Sciences, and Norwegian Geotechnical Institute, Norway</td>
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<td>Wind erosion design considerations for closure of tailings storage facilities in South Africa: a case study</td>
<td>SJ van Wyk, J Hatting, ASH Haagner, Agreenco Environmental Projects, South Africa</td>
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<td>Uranium mining: post-closure land uses – a personal global review</td>
<td>P Waggett, Independent Consultant, Australia</td>
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<td>Land subsidence/rebound change after Hazelwood mine rehabilitation</td>
<td>EP Waghorne, GHD Pty Ltd, Australia; MM Disfani, The University of Melbourne, Australia</td>
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<td>Contamination assessment of mine infrastructure areas for closure and relinquishment: Hazelwood coal mine, Victoria, Australia</td>
<td>TR Weaver, PS Fridell, MB Ospina, ERM Australia Pty Ltd, Australia; R Brooker, MF Schenkel, AM Scrase, ENGIE Australia Pty Ltd, Australia</td>
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<td>Risk-based identification and planning of environmental research needs to inform mine closure</td>
<td>MA Welch, RE Bartolo, AJ Harford, Department of Environment and Energy, Australia</td>
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<td>Risk profiling and control of spontaneous combustion for coal mine closure</td>
<td>B Williams, K Donaldson, Flinders Power, Australia; B Beamish, B3 Mining Services, Australia</td>
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<td>Rehabilitation of the north end box cut dump at Tom Price operations: a legacy management case study</td>
<td>T Worthington, R Green, C Latham, B Yaqub, Rio Tinto Iron Ore, Australia</td>
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<td>A framework for developing mine site completion criteria</td>
<td>RE Young, Curtin University, Australia; A Manero, The University of Western Australia, Australia; BP Miller, Department of Biodiversity, Conservation and Attractions, Australia; ME Kragt, The University of Western Australia, Australia; RJ Standish, Murdoch University, Australia; GS Boggs, Western Australian Biodiversity Science Institute, Australia</td>
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<td>Close-to-nature of coal mine reclamation, is it possible?</td>
<td>T Yunanto, Ministry of Energy and Mineral Resources, Republic of Indonesia; R Miltöhn, R Bürger-Arndt, Goettingen University, Germany</td>
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<tr>
<td>Informed mine closure by multi-dimensional modelling of tailings deposition and consolidation</td>
<td>H Zhou, A Amadio, N Boylan, Norwegian Geotechnical Institute, Australia</td>
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ASSOCIATED EVENTS

Conference Dinner
Frasers Restaurant, Kings Park

Date: Wednesday 4 September 2019
Time: 7:00 (TBC)
Venue: Frasers Restaurant, Fraser Ave, Kings Park
West Perth WA 6005
Web: frasersrestaurant.com.au

Fraser’s is named after the avenue it sits on, the famous Fraser Avenue in beautiful Kings Park, which was named after Malcolm Fraser – the first Surveyor-General of Perth. The avenue is lined with lemon-scented gums, their interlocking branches forming a majestic canopy over the spectacular entrance to the park.

Join us for an evening of relaxation, fine dining and networking at this stunning location. To register, tick the Mine Closure 2019 Conference Dinner option when registering online at www.mineclosure2019.com or on the form at the back of this brochure.

A presentation will be delivered by guest speaker Alan Barrett, Executive Director, Botanic Gardens and Parks Authority (BGPA). The BGPA operates as part of the Department of Biodiversity, Conservation and Attractions. The Department was formed on 1 July 2017 to promote biodiversity and conservation to enrich people’s lives through sustainable management of Western Australia’s species, ecosystems, lands and the attractions in the Department’s care.

Workshop
1 September 2019 | The Westin Perth, Western Australia

Topics and Schedule
In planning for closure, a mining company puts forth a vision of what the coming years will hold for its site. Otherwise known as the post-mining land use, this vision captures what condition and what use(s) the company visualises for the land. The company then works steadily towards achieving that vision. However, even when a company has met all of its rehabilitation and closure obligations, regulators and/or other stakeholders may still be reluctant to allow a mine to be relinquished, particularly where this requires custodial transfer of risk. Consequently, it encounters barriers, frustrations and costly delays.

This one day workshop includes presentations and interactive sessions. In the morning, the programme will discuss the challenges, barriers and opportunities associated with relinquishment, and discuss current policy and practical issues associated with custodial transfer of risk. During the afternoon, we will reimagine the closure planning process to repurpose this for relinquishment planning.

Workshop Facilitator
Sonia Finucane
Director and Principal Consultant
Bioscope Environmental Consulting Pty Ltd

The Workshop Will:
- Explore how mine closure and relinquishment can be positioned to achieve appropriate environmental outcomes and net community benefit.
- Delve into the factors that shape stakeholder perception of relinquishment risks and liabilities.
- Determine how to transform processes to allow proper planning for relinquishment.
- Define a risk framework for determining and managing residual risk and liability.
- Identify enablers for relinquishment at policy and practical levels.
- Discuss how to measure relinquishment success.

Presentations during this workshop will include case studies from Asia, Africa, Australia and Europe.

For more information on these associated events, visit
mineclosure2019.com/associated-events

www.mineclosure2019.com/associated-workshops
Geotechnical Systems that Evolve with Ecological Processes Course

2 September 2019 | The Westin Perth, Western Australia

Overview
Geotechnical systems are required to perform safely throughout their service life, which can span from decades for levees to in-perpetuity for TSFs. The conventional design practice by geotechnical engineers for these systems utilises the as-built material properties to predict its performance throughout the required service life. The implicit assumption in this design methodology is that the soil properties are stable through time. This is counter to long-term field observations of these systems, particularly where ecological processes such as plant, animal biological and geochemical activity is present. This course presents an integrated perspective and new approach to this issue; considering ecological, geotechnical and mining demands and constraints.

Course Presenters
Professor Andy Fourie  
Professor of Civil & Mining Engineering  
The University of Western Australia

Professor Mark Tibbett  
Professor of Soil Ecology  
University of Reading, UK

Preliminary Programme*

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<td>Session 1 - Introducing concepts and purpose</td>
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<td>08:45</td>
<td>Geotechnical principles and good practice for soils and post-mining landscapes</td>
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<tr>
<td>09:30</td>
<td>An introduction to the biology of the soil (part 1)</td>
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<td>09:45</td>
<td>Morning break</td>
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<td>10:30</td>
<td>Session 2 - An introduction to the biology of the soil (part 2)</td>
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<td>11:30</td>
<td>Differing perspectives: ecology versus engineering</td>
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<td>12:30</td>
<td>Lunch</td>
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<td>13:30</td>
<td>Session 3 - How biology colonises and changes soil</td>
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<td>13:45</td>
<td>Soil property and parameter change through time</td>
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<td>14:00</td>
<td>Participant discussion</td>
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<td>Afternoon break</td>
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<td>15:30</td>
<td>Session 4 - Managing an evolving engineered land system: towards an integrated geo-ecological approach</td>
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<td>16:00</td>
<td>Closing discussion</td>
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<td>17:00</td>
<td>Wrap-up and course close</td>
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Preliminary Programme

08:00 Registration
08:30 Introduction to pit lakes Dr Cherie McCullough, Mine Lakes Consulting
09:00 Key issues with pit lakes: Dr Cherie McCullough
• General
• Australia and international examples
10:00 Morning break
10:30 Key opportunities with pit lakes: Dr Cherie McCullough
• General
• Australia and international examples
11:00 Water balance strategies Dr Cherie McCullough
12:00 Lunch
13:00 Interactive break-out session Dr Cherie McCullough
14:00 Pit lakes water balance and water quality modelling: Theory
Dr Devin Castendyk, Golder Associates Inc., USA
15:00 Pit lake water balance and water quality modelling: Case studies
Dr Devin Castendyk
15:30 Afternoon break
16:00 Lessons learned Dr Devin Castendyk
16:45 Synthesis and closing Dr Cherie McCullough
17:00 Workshop close

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*Please note that the preliminary programme is subject to change. For updates, please visit www.mineclosure2019.com
ASSOCIATED EVENTS

Landform Design and Modelling for Mine Rehabilitation and Closure Workshop
2 September 2019 | Perth, Western Australia

About the Workshop
The post-mining landform is the canvass for all other aspects of ecological rehabilitation. Traditionally, the design approach to these landforms has been linear using empirical methods or generic designs. With the development of computer aided construction equipment, designers are no longer confined to straight lines, benches, contour banks and drop structures.

Popular with the community, geomorphic designs claim to ensure greater connectivity with the surrounding environment, visually and functionally by emulating fluvial geomorphic processes. But are these more complex designs cost effective? Are the outcomes more stable, and likely to function ecologically than traditional approaches? and how do we assess that? What of the role of Landscape Evolution Models (LEMs) and how significant are their limitations?

This workshop will provide a practical view of landform design both world-wide and in Australia. Presenters will discuss successes and failures, provide an integrated perspective of the different directions in which this field may develop, and interact with the attendees during question times, breaks and during the panel discussion.

Workshop Presenters:

Associate Professor Jose F. Martín Duque
Complutense University of Madrid and Geosciences Institute, Spain

Associate Professor Gregory Hancock
The University of Newcastle

Harley Lacy
Director-Advisor
MCMS Pty Ltd

Chris Waygood
Principal Mine Closure Specialist
Golder Associates Pty Ltd

Professor David Williams
Director, Geotechnical Engineering Centre
The University of Queensland

Programme*

<table>
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<tr>
<th>Time</th>
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<tr>
<td>07:30</td>
<td>Registration</td>
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| 08:30 | Welcome and introduction
Harley Lacy, MCMS Pty Ltd and Associate Professor Jose F. Martín Duque, Complutense University of Madrid and Geosciences Institute, Spain |
| 08:45 | Setting the scene: what have we done historically in landform design, how has it worked, what lessons can we learn
Harley Lacy |
| 09:10 | The importance of geotechnical stability in landform design – toward sustainability
Professor David Williams, The University of Queensland |
| 09:40 | Understanding the tension between material movement optimisation, ensuring erosional stability and geomorphic/hydrological considerations
Chris Waygood, Golder Associates Pty Ltd |
| 10:00 | Morning break |
| 10:20 | Erosional stability: an overview on soil erosion modelling (RUSLE, WEPP) and landscape evolution modelling (SIBERIA, CAESAR, others)
Associate Professor Greg Hancock, The University of Newcastle |
| 11:00 | Geomorphic/hydrological considerations – landform design tools and software - GeoFluv-Natural Regrade, Talus Royal, River Morphology and the Canadian fluvial geomorphic approach
Associate Professor Jose F. Martín Duque |
| 11:45 | Integration of landform design and landscape evolution modelling
Associate Professors Greg Hancock and Jose F. Martín Duque |
| 12:00 | Panel discussion – challenges and observations, practitioners’ experience with these tools
All |
| 12:10 | Lunch |
| 13:10 | Case studies and lessons learnt:
- European example
- NSW alluvial analogue example
- NSW non alluvial analogue example
- Arid environment example
- Long duration assessments for uranium mining |
| 14:30 | Afternoon break |
| 15:00 | River restoration and stream diversion approaches
Associate Professor Jose F. Martín Duque and Chris Waygood |
| 15:40 | Integrating ideas, developing new ideas, addressing ongoing challenges in implementation and philosophy
Panel discussion |
| 17:00 | Workshop close |

*Please note that the programme is subject to change. For updates, please visit www.mineclosure2019.com
ASSOCIATED EVENTS

BHP Beenup Rehabilitation Project Site Visit
6 September 2019 | Margaret River region, Western Australia
In 2018, 19 years after closure, rehabilitation of the former Beenup Titanium Minerals project has achieved regulatory sign-off against the 21 completion criteria, as agreed with stakeholders.
The Beenup Consultative Group, formed ten years prior to closure, played an integral part in the planning, design and oversight of rehabilitation, including independent peer review, and remains active.
The site is now transitioning, with stakeholder input, to a monitoring and relinquishment phase requiring only minimal resources to ensure that the project tenements continue to meet the remaining statutory obligations and that design features are not compromised while also considering the opportunities that could be realised for the site into the longer term post-relinquishment.
The ACG thanks BHP for freely donating their time and resources to host this visit.
Spaces are limited. More details coming soon. To register your interest, email info-acg@uwa.edu.au

Restoration Science and Botanic Garden Tour
6 September 2019 | Kings Park, Perth, Western Australia
Duration: Half day 9:00am - 12:00pm
Kings Park Science is the State’s premier restoration science and ex-situ conservation research provider, having developed a strong restoration science brand over the past 30 years in collaboration with the mining sector.
The laboratory and glasshouse tour will highlight leading technologies and concepts across these key areas as related to mine rehabilitation and closure. A guided walk will then allow guests to experience key features of the Kings Park’s Botanic Garden and adjacent bushland.
The ACG thanks the Department of Biodiversity, Conservation and Attractions, Kings Park Science for generously giving their time and resources in facilitating this activity.
Spaces will be limited to 40. Morning tea provided.
Contact details for bookings: Lyndsey Osborne | scienceadmin@dbca.wa.gov.au | + 61 8 94803614

Iluka Resources’ Tutunup South Site Visit
6 September 2019 | Busselton region, Western Australia
Iluka Resources is currently rehabilitating its Tutunup South mine, located in the southwest of Western Australia, approximately 16 km southeast of Busselton. Tutunup South was mined between 2011 and 2018 for zircon and ilmenite for the production of synthetic rutile at Iluka’s Capel processing facilities. Rehabilitation commenced in 2018 and will be completed in 2021. The site is one of numerous mines that Iluka has closed or is progressively rehabilitating in Australia, the US and Sierra Leone.
Tutunup South is mainly agriculture land (192 ha) that will be returned to productive pasture. Native vegetation makes up the remaining 17 ha and include 2 ha of paluslope wetland. This wetland contained plant species that are difficult to propagate so Iluka used an innovative approach for its rehabilitation. The entire wetland vegetation, including its soil, was transplanted to an irrigated nursery area in 2010. The plants have survived and flourished in the nursery and will be transplanted into the reinstated wetland in 2019.
To register your interest, email info-acg@uwa.edu.au

Collie Mine Lake District Inspection
7 September 2019 | Collie River Catchment, Western Australia
Underground and open cut coal mining has taken place in the Collie basin since 1898 with a number of mining legacies resulting. Until the mid-1990s, coal mining was predominantly in the Cardiff sub-basin. In 1997 mining in the Cardiff sub-basin ceased and since then mining has taken place in the Premier sub-basin at the Muja, Ewington and Premier mines. As a result of a dispute with the government, six open cut pits were abandoned in the 1950s and 1960s, which went on to form Stockton Lake, Ewington Lake, Blue Waters, Black Diamond (A & B) and Wallsend (historically used for landfill).
Currently two mining companies, Yancoal Premier Coal Pty Ltd and Lanco Griffin Coal Pty Ltd, have active mines and a number of unrelinquished pit lakes in the Premier sub-basin. Yancoal Premier Coal Pty Ltd is currently evaluating rehabilitation and development of end uses for finished pits in the Cardiff sub-basin. Premier also seeks to relinquish Lake Kepwari which completed mining in 1997. Griffin Coal is maintaining pit lakes in the Premier sub-basin in an operational capacity, but also seeking relinquishment options that might also entail beneficial end uses.
The ACG thanks Dr Cherie McCullough, principal environmental scientist/director at Mine Lakes Consulting for leading this inspection, and freely donating her time and resources.
More details coming soon. To register your interest, email info-acg@uwa.edu.au

www.mineclosure2019.com/site-tours
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IMPORTANT NOTE
Mine Closure 2019 Conference speakers please do not fill out this form. Speakers will be contacted by the ACG upon acceptance of their paper and will be advised regarding speaker registration. The speaker registration fee for the Mine Closure 2019 Conference is AUD 1,100.

Online registration is available at mineclosure2019.com/product/registrations/

CONTACT DETAILS
Please print. * mandatory fields.

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*Family Name ___________________________________________

*First Name ___________________________________________

Preferred Name ___________________________________________

*Position ___________________________________________

*Organisation ___________________________________________

Mine/Dept ___________________________________________

*Address ___________________________________________

Phone ___________________________________________

Fax ___________________________________________

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

Registrant contact details are intended to be published in the events authorised attendee list made available to event attendees, sponsors and exhibitors, who may contact you, including electronically, in the promotion of their products and services.

☐ I give permission for my details to be included in the Mine Closure 2019 and associated events attendee lists.

☐ I give permission for the ACG to forward me ACG research, training and/or education information advice, including electronic communications.

☐ 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 acg.uwa.edu.au/about-events-and-courses/

DELEGATE CANCELLATIONS
Up to 8 days before event commencement: an administration fee of AUD 150 will be charged. 7 or less days before: no refund. Non-attendance: no refund. Substitutions will be accepted at any time. The ACG reserves the right to cancel the conference and associated events if insufficient registrations are received.

Delegate Terms and Conditions are available at acg.uwa.edu.au/disclaimer/

† Visit acg.uwa.edu.au/corporate-affiliate/ to view the list of ACG Corporate Affiliates. ^ Students are required to provide proof of full-time enrolment.

PAYMENT

Total payment AUD __________

Payment to be received by 30 August 2019. All bank fees are the responsibility of the registrant. All prices include GST. ABN 37 882 817 280

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☐ Credit Card: Please register online at www.mineclosure2019.com/product/registrations/ or alternatively, return this completed form to info-acg@uwa.edu.au and contact us by phone to make payment. (Visa and Mastercard are the only cards we accept).

☐ Electronic Funds Transfer (EFT): Please return this completed form to info-acg@uwa.edu.au and the ACG will send you an invoice with EFT details included. PO# (if required)

PAYMENT OPTIONS

Mine Closure 2019 Conference (1915) | 3–5 September 2019

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Mine Closure 2019 Conference Dinner
4 September 2019 | 143

Please notify us below of any special dietary requirements.

All full registrations will receive luncheons and refreshments. Conference papers will be accessible at papers.acg.uwa.edu.au from 26 August 2019. If you would like a printed copy of the proceedings, please tick the box below.

Mine Closure 2019 Printed Proceedings (Softbound, colour) (Conference special) | 198


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Pit Lakes Closure Planning Workshop (1912) | 1 September 2019

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Geotechnical Systems that Evolve with Ecological Processes Course (1914) | 2 September 2019

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Landform Design and Modelling for Mine Rehabilitation and Closure Workshop (1913) | 2 September 2019

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