



SGM ENVIRONMENTAL
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Curriculum Vitae, Dr Timothy Rohde

PROFILE



Timothy is an environmental scientist and has been practicing for 18 years in the fields of soil science, geochemistry and mine closure.

Timothy is an experienced closure and rehabilitation specialist. He regularly works with legislation, best practice guidelines and completes technical investigations to develop tailored closure and rehabilitation options. He specialises in storage facility design, final landform design, cover design, geochemistry, decommissioning and closure cost estimation.

Timothy is an experienced soil scientist having completed numerous soil surveys. He regularly assesses land capability and agricultural suitability.

He has gained a reputation by not backing away from difficult projects (positivity), delivering on his promises (trust), looking for new ways to help (innovation) and sharing mutual responsibility for preventing harm and promoting well-being (safety).

QUALIFICATIONS AND MEMBERSHIPS

Bachelor of Environmental Science in Natural Resource Science, University of Queensland, 2002

Post Graduate Diploma in Mined Land Rehabilitation, University of Queensland, 2004

PhD in Mining Engineering, University of Queensland, 2009

Member and Chartered Professional Soil Scientist of the Australian Society of Soil Science (CPSS)

Member and Chartered Professional (Environment) of the Australian Institute of Mining and Metallurgy (MAusIMMCP)

Registered Professional Engineers of Queensland (RPEQ)

CAREER

Director; SGM Environmental, 2017-present

Member of International Conference on Mine Closure organising committee, 2015-2016

Associate Director environmental scientist, EMM Consulting, 2012-2017

Member of International Conference on Mine Closure organising committee, 2011-2012

Senior scientist (mining), Sinclair Knight Merz, 2011-2012

Senior scientist (mining), Environmental Earth Sciences, 2010-2011

Senior scientist (mining), AECOM, 2008-2010

Associate lecturer / research fellow, University of Queensland, 2007-2008

Consultant to UniQuest, University of Queensland, 2002-2007



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Representative Experience

MINE GEOCHEMISTRY

- Hera Mine, tailing storage facility geochemistry assessment, NSW (Aurelia Metals)
- Trap Gully Landfill, spoil and soil suitability assessment for inclusion in a cover to create a final landform, Qld (Banana Shire Council)
- Frances Creek Mine, acid base accounting and an encapsulation strategy for three potentially contaminating waste rock dumps, NT (TRL Frances Creek Pty Ltd)
- Snowy 2.0, spoil disposal options study and rock emplacement area assessment, NSW (Snowy Hydro Pty Limited)
- Carmichael Rail Project, phase 1 contaminated land assessment for MUI, Qld (Adani Mining Pty Ltd)
- NSW Derelict Mines Department, former works assessment program for the Apsley, Mullon, North Wisemans Creek, Peelwood, Ponsonby, Phoenix Mabel and Shambala Mines, NSW (NSW Department of Planning and Environment)
- Rosebery Mine, construction audit of the three-level waste rock dump in 2017 and 2018, Tas (MMG)
- Frances Creek Iron Ore Mine, waste rock management plan and constructed waste rock dump geochemistry review, NT (Territory Iron Pty Ltd)
- Century Mine, contamination of soil and rock substrate below the tailings storage facility, Qld (MMG)
- White Dam Gold Mine, phase 2 extension waste rock and ore management plan and heap leach pad management plan, SA (Round Oak Minerals)
- White Dam Gold Mine, review of cyanide source, pathway and receptor study for the heap leach pad, SA (Round Oak Minerals)
- White Dam Gold Mine, review of acid rock drainage potential from rehabilitated waste rock dumps, SA (Round Oak Minerals)
- Aberdare East Mine, geochemistry assessment and landform design for legacy tailings and chitter deposit, NSW (Hunter Enviro Mining)
- Century Mine, cover performance and tailings geochemistry assessment of the bulk sample tailings dam, Qld (MMG)
- Mt Boppy Mine, geochemistry baseline study, waste rock management plan and conceptual landform design, NSW (Polymetals Mining)
- Granny Deeps Project, geochemistry prefeasibility study, WA (Barrick)
- Queen Bee Mine, mine closure study (geochemistry, water management and cover design and sediment management), NSW (Peak Gold)
- Mt Goldworthy, geochemical assessment of a legacy waste rock dump including future management strategies, WA (BHP)
- Telfer underground mining operations, opportunities and constraints for use of saline mine water derived from Telfer operations, WA (Newcrest Mining)
- Olympic Dam Mine, kinetic column testing and natural attenuation study, SA (BHP)



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CIVIL GEOCHEMISTRY

- Trap Gully Landfill, conceptual cover design for the decommission of a landfill cell, Qld (Banana Shire Council)
- Gloucester to Hexham Pipeline, acid sulfate soil assessment for environmental impact statement, NSW (AGL)
- Black Swamp, acid sulfate soil assessment for site remediation, Qld (Cleveland City Council)
- Brisbane Eastern Busway, acid sulfate soil assessment for construction environmental monitoring, Qld (Brisbane City Council)
- Darling Walk, acid sulfate soil for site remediation and redevelopment, NSW (AECOM)

QUARRY CLOSURE

- Boral Quarries, rehabilitation strategies and liability estimates for Yatala, Purga Metz, Montrose and Wollert Quarries, Qld, NSW and Vic (Boral Property Group)
- Gunlake Quarry, soil survey, land and soil capability, biophysical strategic agricultural land and rehabilitation strategy, NSW (Gunlake Quarry Pty Limited)
- Emu Plains Quarry, rehabilitation cost estimate and final landform and project management of ecology and erosion and sediment control studies, NSW (Boral Property Group)
- Broken Head Quarry, quarry closure strategy, landform design and rehabilitation cost estimate for future land use of residential, NSW (Leadshine)
- Allandale Quarry, quarry rehabilitation management plan including a conceptual final landform for quarry extraction schedule, NSW (Newcastle Quarry Products)
- Talbragar Quarry, rehabilitation and restoration plan, NSW (Boral Property Group)

MINE CLOSURE

- Peak Gold Mine, review of the tailings storage facility to develop a preliminary rehabilitation strategy, NSW (Aurelia Metals)
- Lady Annie Mine, review of closure and rehabilitation strategy and financial assurance, Qld (CST Minerals)
- Blair Athol Mine, review of an encapsulated tailings storage facility and assessment against environmental authority conditions, Qld (Orion Mining)
- Blair Athol Mine, conceptual mine closure plan, Qld (Orion Mining)
- Burton Mine, progressive rehabilitation and closure plan, Qld (Peabody)
- New Acland Mine, rehabilitation certification area review and application, Qld (New Hope Group)
- Century Mine, third party review of financial assurance and plan of operations, Qld (MMG)
- North Goonyella Mine, facilitation of closure risk planning and workshop, Qld (Peabody)
- Wilkie Creek Coal Mine, mine closure planning, closure risk assessment, third-party review of financial assurance and studies towards progressive rehabilitation certification, Qld (Peabody)
- White Dam Gold Mine, mine completion planning and completion risk assessment and cover column trials, SA (Round Oak Minerals)
- Mangoola Coal Mine, desktop assessment and options study of mine closure and rehabilitation, NSW (Glencore)
- Balranald Mineral Sand Project, mine operation plan, mine closure and rehabilitation plan and rehabilitation cost estimate, NSW (Iluka)
- Aberdare East Mine, mine operation plan and closure and rehabilitation cost estimate, NSW (Hunter Enviro Mining)



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MINE CLOSURE

- Carmichael Coal Project, rehabilitation management plans for mine, railway, off-site infrastructure and quarries, Qld (Adani Mining Pty Ltd)
- Exploration Licence 5410 Project, mine rehabilitation strategy and rehabilitation cost estimation, NSW (Enviro Mining)
- Channar Mine, mine closure planning and closure risk assessment, WA (Rio Tinto Iron Ore)
- Stanwell Power Assets, decommissioning plan, order-of-magnitude cost estimate and rehabilitation plan for a number of power generation assets, Qld (Stanwell Power Assets)
- Queensland Alumina Limited (QAL), knowledge base review, closure strategy, closure management plan and closure cost estimate, Qld (Rio Tinto Alumina)
- Tanami Gold Mine, notice of intention and desktop closure study, NT (Tanami Gold)

LANDFORM AND COVER DESIGN

- Trap Gully Landfill, cover design for rehabilitation of a landfill cell, Qld (Banana Shire Council)
- White Dam Gold Mine, cover column trials to assess three potential covers for the rehabilitation of the heap leach pad, SA (Round Oak Minerals)
- Dugald River, conceptual cover design modelling and cover column trials, Qld (MMG)
- Endeavor Mine, prefeasibility study for an above ground waste rock dump including a statement of environmental effect and mine operation plan amendment, NSW (Endeavor Operations Pty Ltd)
- Cannington Mine, expert review of cover closure options for a tailings storage facility, Qld (South 32)
- BMA Mines, conceptual cover design and cost estimation for tailings storage facilities at Blackwater, South Walker Creek, Goonyella Riverside, Peak Downs, Norwich Park, Saraji and Mount Arthur, Qld and NSW (BMA)
- Golden Grove Mine, geochemistry review, risk assessment and conceptual cover design for a tailings storage facility, WA (MMG)
- Hera Mine, preliminary cover design and cover column trials, NSW (Aurelia Metals)
- Frances Creek Iron Ore Mine, preliminary cover design and instrumented cover trials, NT (Territory Iron Pty Limited)
- Endeavor Mine, cover design modelling, cover column trials and large field cover trials to determine a cover for the tailings storage facility, NSW (Endeavor Operations Pty Ltd)
- Kolosori Nickel Project, mine and roads rehabilitation management plan, Solomon Islands (Axiom)
- Mt Gordon Mine, store and release cover design for the Mammoth tailing storage facility, Qld (Birla Mt Gordon Operations)
- CSA Mine, prefeasibility study for an above ground waste rock emplacement area including rehabilitation planning, NSW (Cobar Management Pty Ltd)
- White Dam Gold Mine, cover design including cover column trials to determine cover options performance, landform design and erosion assessment of the waste rock dumps, pit voids and heap leach pad, SA (Round Oak Minerals)
- Century Mine, south waste rock dump quality assurance testing of the reduced permeability layer and certification, Qld (MMG)
- Century Mine, north waste rock dump confirmation testing to ensure that final cover met design requirements for a store and release cover, Qld (MMG)
- Century Mine, south waste rock dump store and release cover instrumentation and monitoring for the past five years, Qld (MMG)



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LANDFORM AND COVER DESIGN

- Century Mine, main tailings storage facility store and release cover trials, Qld (MMG)
- Blair Athol Mine, landform, assessment of pre-existing rehabilitation and erosion modelling, closure plan, erosion sediment control plan and mineralised waste management plan, Qld (Rio Tinto Coal)
- Wetar Island Mine, waste rock dump feasibility study and conceptual design and conceptual cover design for a heap leach pad, Indonesia (Finder Resources)
- Nicklewest, conceptual landforms and closure planning for all assets, WA (Nicklewest)
- Millennium Coal Mine, out-of-pit spoil dump rehabilitation design and construction feasibility, Qld (Peabody)
- Crocodile Gold, review of existing storage facilities and conceptual landform and cover design for all operations, NT (Crocodile Gold)
- Stuart Shale Oil Project, mine reject area characterisation and store and release cover trials, Qld (QER)
- Century Mine, compaction study for final cover design of waste rock dumps, Qld (MMG)
- Ensham Coal Mine, compaction study to reinstate the Nogoa River at closure, Qld (Idemitsu)
- Cadia Hill Gold Mine, cover and landform design trials, NSW (Newcrest)
- Cosmos Nickle Mine, Cover design and instrumented trials for a potentially contaminating tailings storage facility, WA (Glencore)

SOIL SCIENCE

- New Acland Coal Mine, progressive rehabilitation certification of 349 ha - the largest single area of certified rehabilitation for an open cut coal mine in the State, Qld (New Hope Group)
- Wilkie Creek Coal Mine, assessment of soil from rehabilitated land and recommendations for improving soil capability, Qld (Peabody)
- Wilkie Creek Coal Mine, assessment of the potential impact of beneficial water on rehabilitated land, Qld (Peabody)
- Glen Davies Oil Shale Refinery, hydrocarbon contamination assessment of soil at the derelict site managed by the NSW legacy mine program, NSW (Department of Planning & Environment)
- Hazelwood Coal Mine, rapid assessment of rehabilitated, Vic (Engie)
- Great Australian Operation, review of soil inventory and assessment of soil chemistry constraints on vegetation growth, Qld (Round Oak Minerals)
- Broken Head Quarry, review and design of erosion and sediment controls for interim rehabilitation phase prior to redevelopment for residential land use, NSW (Leadshine)
- Dunmore Quarry, land and soil capability assessment and soil management, NSW (Boral Property Group)
- Musswellbrook Coal Mine, management of soil survey and land capability assessment to support a mine modification over previously rehabilitated land, NSW (Musswellbrook Coal Company)
- Arrow Energy Beneficial Use Project, assessment of the potential impact of beneficial water on farmland near Roma, Qld (Arrow Energy)
- Kolosori Nickel Project, management of soil survey, land capability assessment and reporting, Solomon Islands (Axiom)
- Moreton Bay Railway, soil assessment report and CPSS certification sign-off, Qld (Theiss)
- Mangoola Coal Mine, soil survey and biophysical strategic agricultural land assessment of the brown field site, NSW (Glencore)



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SOIL SCIENCE

- Kestrel Coal Mine, review of strategic cropping land (SCL) and white paper on how mine land can be returned to pre-mining SCL condition, Qld (Rio Tinto Coal)
- Balranald Mineral Sand Project, preparation of a soil survey report and biophysical strategic agricultural land assessment, NSW (Iluka)
- Wards River Coal Seam Gas Project, preparation of an agricultural impact statement for exploration, NSW (AGL)
- Waukivory Coal Seam Gas Project, preparation of an agricultural impact statement for exploration, NSW (AGL)
- Warkworth Coal Mine, preparation of a biophysical strategic agricultural land verification assessment, NSW (Rio Tinto Coal Australia)
- Baralaba Coal Mine, preparation of a topsoil management plan, erosion sediment control plan, post mining land use plan and rehabilitation monitoring plan, Qld (Cockatoo Coal)
- Moolarben Coal Mine, preparation of a biophysical strategic agricultural land verification assessment, NSW (Rio Tinto Coal Australia), NSW (YanCoal)
- Hume Coal Mine, soil survey, land and soil capability assessment and biophysical strategic agricultural land assessment including preparing a soil verification certificate application report, NSW (Posco)
- Saraji East Coal Mine, preparation of a protection order for submission to the DEHP for confirmed strategic cropping, Qld (BMA)
- Collingwood and Taroom Coal Projects, soil survey to describe and map soils using the Australian Soil Classification and Northcote key and strategic cropping land assessment, Qld (Cockatoo Coal)
- Peak Downs Coal Mine expansion, desktop assessment and field survey using the Australian Soil Classification to groundtruth site soils, management of soil and preservation for rehabilitation, Qld (BMA)
- New Acland Coal Mine, topsoil stripping management plan, Qld (New Hope Coal)
- Wards Well Coal Project, desktop assessment and field survey using the Australian Soil Classification to groundtruth site soils, management of soil and preservation for rehabilitation, Qld (BMA)
- Arrow Bowen gas pipeline, soil survey, Qld (Arrow Energy)
- Rolleston Coal Mine expansion, baseline studies for geology, soil and landscape and closure and rehabilitation, Qld (Xstrata)



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Representative Publications

- Chapman PJ, Williams, DJ and Rohde, TK 2009, 'Unsaturated Behaviour of Tailings during Deposition and Desiccation Cycles with Reference to Closure Design'. Proceedings of the 4th Asia-Pacific Conference on Unsaturated Soils, Newcastle, Australia, 23-25 November 2009.
- Chapman PJ, Williams, DJ, Rohde, TK and Ennor, SJ 2009, 'Acid Drainage Management and Closure Design of a Sulfidic Tailings Storage Facility in a Dry Climate'. Proceedings of the 8th International Conference on Acid Rock Drainage, Skellefteå, Sweden, 23-26 June 2009.
- Defferrard, P and Rohde, TK 2018, 'Five years of cover performance monitoring and modelling for a store and release cover at Century Mine'. Proceedings of the Mine Waste and Stewardship Conference, Brisbane, Australia, 23 July-24 July, The Australasian Institute of Mining and Metallurgy.
- Defferrard, P, Rohde, TK and Lord, M 2016, 'Leading practice store and release cover trials for a tailings storage facility at Century mine'. Proceedings of the 11th International Conference of Mine Closure, Perth, Australia, 15-17 March, Australian Centre for Geomechanics.
- Rohde TK and Williams, DJ 2011, 'Monitoring of Cadia's Store/Release Covers Over a Potentially Acid Forming Trial Waste Rock Dump: Four Years On', Proceedings of 7th Australian Workshop on Acid and Metalliferous Drainage, Darwin, Australia, 21-24 June, Australian Centre for Minerals Extension Research.
- Rohde, TK 2013, 'A Review of Successful Australian Covers and Comparison to Local Soil Conditions'. Proceedings of Australian Mine Rehabilitation Planning for Rehabilitation Success, Adelaide, Australia, 6-8 August, Sustainable Mineral Institute.
- Rohde, TK 2014 'A comparison of store-and-release covers to undisturbed soil – is best-practice rehabilitation and future food security related?' The Bulletin Magazine, June 2014, AuslMM
- Rohde, TK and Defferrard, P 2013, 'Autopsy of a Tailings Storage Facility at Century Mine'. Proceedings of Australian Mine Rehabilitation Planning for Rehabilitation Success, Adelaide, Australia, 6-8 August, Sustainable Mineral Institute.
- Rohde, TK and Defferrard, P 2014, 'Performance of a Cover on a Bulk Sample Tailings Dam at Century Mine'. Proceedings of the 8th Australian Workshop on Acid and Metalliferous Drainage, Adelaide, Australia, 29 April – 2 May, JKTech Pty Ltd.
- Rohde, TK and Defferrard, P 2015, 'Instrumentation and early monitoring results of the South Waste Rock Dump at Century mine'. Proceedings of Australian Mine Rehabilitation Innovation in Mine Planning and Rehabilitation, Adelaide, Australia, 18-20 August, Sustainable Mineral Institute.
- Rohde, TK and Jamson, N 2018, 'Making use of potentially contaminating mine waste in cover design'. Proceedings of the Mine Waste and Stewardship Conference, Brisbane, Australia, 23 July-24 July, The Australasian Institute of Mining and Metallurgy.
- Rohde, TK and Williams, DJ 2009, 'Early Hydrological Monitoring of Cadia's Instrumented Trial Waste Rock Dump'. Proceedings of 8th International Conference on Acid Rock Drainage, Skellefteå, Sweden, 23-26 June, CD Publication.
- Rohde, TK and Williams, DJ 2011, 'Waste Rock Dump Rainfall Infiltration and Base Seepage'. Proceedings of 7th Australian Workshop on Acid and Metalliferous Drainage, Darwin, Australia, 21-24 June, Australian Centre for Minerals Extension Research.
- Rohde, TK and Williams, DJ 2011, 'Store and Release Cover Performance at Cadia Hill Gold Mine. NSW Australia'. Proceedings of 6th International Conference on Mine Closure, Alberta, Canada, 18-21 September, Australian Geomechanics Centre Publishing.
- Rohde, TK, Defferrard P and Lord, M 2016, 'Store and release cover water balance for the south waste rock dump at Century mine'. Proceedings of the 11th International Conference of Mine Closure, Perth, Australia, 15-17 March, Australian Centre for Geomechanics.
- Rohde, TK, Defferrard, P and Lord, M 2015, 'Instrumentation and Early Monitoring Results of the South Waste Rock Dump at Century Mine'. Proceedings of the 10th International Conference on Mine Closure, Vancouver, Canada, 1-3 June, Sustainable Mineral Institute.
- Rohde, TK, Defferrard, P and Millsom, BJ 2013, 'Instrumentation and Early Monitoring Results of the South Waste Rock Dump at Century Mine'. Proceedings of Australian Mine Rehabilitation Planning for Rehabilitation Success, Adelaide, Australia, 6-8 August, Sustainable Mineral Institute.
- Rohde, TK, Hardie, K and Jamson, N 2017, 'Improved Rehabilitation Outcomes Through Smart Cover Design at Endeavour Mine, NSW'. Proceedings of the 9th Australian Workshop on Acid and Metalliferous Drainage, Burnie, Australia, 20 November – 23 November, JKTech Pty Ltd (in-press).



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- Williams, DJ and Rohde, TK 2007. 'Saturation required for continuum flow through different mine waste materials'. Proceedings of 10th Australia New Zealand Conference on Geomechanics, Brisbane, Australia, 21-24 October 2007, II, 280-285.
- Williams, DJ and Rohde, TK 2007. 'Strategies for reducing seepage from surface waste rock piles during operation and post-closure'. Proceedings of 2nd International Seminar on Mine Closure, Santiago, Chile, 16-19 October 2007, I, 521-532.
- Williams, DJ and Rohde, TK 2008. 'Field Measurements of Mine Rock Dump Rainfall Infiltration and Base Seepage'. Geotechnical News, 26(1), 52-57.
- Williams, DJ and Rohde, TK 2008. 'Rainfall infiltration into and seepage from waste rock piles – A review'. Proceedings of 1st International Seminar on Rock Dumps, Stockpiles and Heap Pads, Perth, Australia, 5-6 March 2008. Australian Geomechanics Centre.
- Williams, DJ and Rohde, TK 2008. 'Waste rock dump rainfall infiltration and base seepage at Cadia'. Proceedings of 6th Australian Workshop on Acid and Metalliferous Drainage, Burnie, Australia, 15-17 April 2008. Australian Centre for Minerals Extension Research.
- Williams, DJ and Rohde, TK 2009. 'Reliability of Using Laboratory-Determined Soil Water Characteristic Curve Data for Mine Waste Cover Design'. Proceedings of 4th International Conference on Mine Closure, Perth, Western Australia, 9-11 September 2009. Australian Centre for Minerals Extension Research.
- Williams, DJ, Rohde, TK, Stolberg, DJ and Pope, G 2006. 'Alternative design and instrumentation of covers over potentially acid forming mine wastes'. Proceedings of 5th International Congress on Environmental Geotechnics, Cardiff, UK, 26-30 June 2006, II, 1007-1014.

