

**Education**

PhD, University of Western Australia, 2017

MEngSc, Geotechnical Engineering, University of New South Wales, 2010

BASc, Civil Engineering, Queen's University, 2004

Certifications

CPEng, Australia, 2012

Languages

English – Fluent

The University of Western Australia – Perth, Australia

Research Fellow (2017-current)

Research Fellow on an ARC Linkage Project studying static liquefaction of tailings. Carrying out site investigations and sampling, laboratory element testing, and providing supervision to PhD students on the project. Manufacturing a calibration chamber to enable controlled cone penetration testing of tailings. Running workshops and training related to static liquefaction and tailings characterisation.

Golder Associates – Perth, Australia

Principal Tailings Engineer (2017), Senior Tailings Engineer (2014 to 2017)

Provides technical direction to geotechnical investigations, stability analyses, and numerical modelling of a wide range of TSF types in Australia and overseas. Ongoing involvement and technical direction of tailings characterisation works at Golder's Perth laboratory. Carries out third party reviews, and internal reviews of Golder projects globally.

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Principal Tailings Engineer (2017-current), Senior Tailings Engineer (2014 to 2017)

Provides technical direction to geotechnical investigations, stability analyses, and numerical modelling of a wide range of TSF types in Australia and overseas. Ongoing involvement and technical direction of tailings characterisation works at Golder's Perth laboratory. Carries out third party reviews, and internal reviews of Golder projects globally.

University of New South Wales – Sydney, Australia

Visiting Fellow (2016)

Assisted in the preparation of an ARC Discovery grant application related to calibration chamber testing of tailings. Provided advice on simple shear testing methods, and accounting for hypersaline pore fluid in geotechnical measurements.

University of Western Australia – Perth, Australia

Ph.D. Candidate – Full and Part Time (2011 to 2017)

Undertook research assessing the effects of polymer treatment on the geotechnical behaviour of tailings, including laboratory testing, sample preparation techniques, and model penetrometer testing in UWA's beam centrifuge.

Golder Associates – Perth, Australia

Tailings Engineer (2009 to 2014)

Carried out civil design, geotechnical investigations, construction quality assurance, stability and consolidation analyses, and liquefaction assessments for a variety of TSFs across Australia in the concept, detailed design, operation, and closure stages.

Metago Environmental Engineers – Perth, Australia*Tailings Engineer (2008 to 2009)*

Undertook quality assurance works for construction of a downstream iron ore TSF in the Pilbara.

Golder Associates – Perth, Australia*Tailings Engineer (2005 to 2008)*

Civil design, drawing and specification preparation, stability analyses, geotechnical investigations and construction quality assurance for a variety of TSFs and heap leach pads across Australia, primarily in the operation and detailed design stages.

SELECTED PROJECT EXPERIENCE**Review of Mine
Tailings Projects**
Worldwide

Conducted internal Golder senior reviews and external third party reviews for projects worldwide including sites in Mexico, Mongolia, and Australia.

Bauxite tailings study
Australia

Lead a comprehensive test program including triaxial compression, extension, and direct simple shear tests on a bauxite residue. Designed and constructed new test devices to allow testing with caustic pore fluid. Implemented measures to enable safe testing of caustic pore fluid at high pressures.

**Upstream-raised
copper TSF**
Anonymous

Technical lead for geotechnical investigation, sampling, laboratory testing, stability analyses, buttress design, and liquefaction assessments of a major upstream-raised TSF.

**Upstream-raised
nickel TSF**
Anonymous

Technical lead for geotechnical investigation, sampling, laboratory testing, stability analyses and liquefaction assessments. Carried out geotechnical investigation, including cone penetration testing, ball penetrometers, vane shear, and piston sampling. Later undertook direct simple shear and triaxial tests, including developing techniques to utilise representative hypersaline pore fluid within test devices.

Pilbara residue TSF
Pilbara, Australia

Technical support for expansion of waste fines cell, including geotechnical investigation of foundation materials and embankment waste fill. Carried out variety of laboratory testing, consolidation modelling, and ongoing construction monitoring.

Gold TSFs
Goldfields, Australia

Technical lead for geotechnical investigation, sampling, laboratory testing, stability analyses and liquefaction assessments. Carried out geotechnical investigation, including cone penetration testing and sampling. Later undertook triaxial testing to assess critical state line of recovered disturbed samples for comparison to in situ void ratios, including developing techniques to account for hypersaline pore fluid during sample preparation to support liquefaction assessments.

BASF Australia
Various

Provide ongoing technical support, consolidation modelling, and laboratory testing for BASF in the assessment and evaluation of the application of polymer-treatment to tailings to increase dewatering and consolidation rates.

PUBLICATIONS**Journal Papers**

Reid, D. and Fourie, A. 2017. Centrifuge assessment of the effects of polymer treatment on penetrometer response. *International Journal of Physical Modelling in Geotechnics* (ahead of print).

Reid, D. and Fourie, A. 2017. Effects of polymer treatment on undrained strength and cyclic behavior of a low plasticity slurry. *Journal of Geotechnical and Geoenvironmental Engineering*, 143(6).

Reid D. and Fourie A. 2016. Laboratory assessment of the effects of polymer treatment on geotechnical properties of low plasticity soil slurry. *Canadian Geotechnical Journal*, 53(1): 1718-1730.

Reid, D. 2014. Estimating slope of the critical state line from cone penetration test – an update. *Canadian Geotechnical Journal*, 52(1): 46-57.

Selected Conference Papers

Reid, D. 2016. Effect of rotation rate on shear vane results in a silty tailings. *5th International Conference on Geotechnical and Geophysical Site Characterisation*.

Reid, D. 2015. Observations on the behaviour of a gold tailings with hypersaline pore fluid. *Tailings and Mine Waste Management for the 21st Century*.

Reid, D., Fanni, R., and Kulesa, M. 2015. Cyclic and post-cyclic behaviour of four Australian tailings. *Tailings and Mine Waste Management for the 21st Century*.

Reid, D. and Boshoff, J. 2015. Assessing the flow liquefaction susceptibility of cyclone underflow material. *18th International Seminar on Paste and Thickened Tailings*.

Reid, D. and Boshoff, J. 2015. Stability of a proposed steepened beach. *18th International Seminar on Paste and Thickened Tailings*.

Reid, D., Fanni, R., and Kulesa, M. 2015. Cyclic and post-cyclic behaviour of four Australian tailings. *Tailings and Mine Waste Management for the 21st Century*.

Reid, D. and Fourie, A. 2014. Assessing the post-liquefaction shear strength of thickened tailings in the design stage – a review and update. *17th International Seminar on Paste and Thickened Tailings*.

Reid, D. and Fourie, A. 2012. Accelerated consolidation testing of slurries using a desktop centrifuge. *Tailings and Mine Waste 2012*.

Book Chapters

Fourie, A. and Reid, D. 2015. Chapter 4 - Material characterisation. *Paste and Thickened Tailings – a Guide, 3rd Edition*.