



Dr Angus Paterson is the managing director of the Cape Town office of Paterson & Cooke, having founded the company together with Dr Robert Cooke in 1991.

Dr Paterson has been directly involved in analysis and design of slurry transport systems since 1987. Angus has worked on slurry pipeline projects in Namibia, Ghana, Gabon, Botswana, North America and South America. These include feasibility studies for long distance concentrate pipelines, detailed design of backfill distribution systems, and the design of numerous conventional, thickened and paste tailings systems.

He regularly lectures at courses offered by the Company, as well as at international forums and conferences.

Qualifications

1984, BSc Civil Eng.
University of Cape Town

1986, MSc Eng. University
of Cape Town

1991, PhD.
University of Cape Town

Professional Status

Registered South African
Professional Engineer

Member of South African
Institute of Civil Engineers

Specialization

Slurry pipeline flow
behaviour, particularly the
flow of non-Newtonian
slurries

Analysis and design of
paste and thickened
tailings pumping systems

Analysis and design of
deep level gravity flow
hydraulic backfill and paste
fill distribution systems

Hydraulic and process
design of slurry pumping
systems

Notable Projects

Ranger Mine, Australia (2008/9)

Angus was the project director responsible for the detailed front end design of the new tailings pump and pipeline system for Ranger Mine. The project included several trade-off studies and review of alternative systems, and the final design was done in conjunction with BECA, who provided detailed design and project management services. The system was commissioned in 2009.

Northparkes Mine, Australia (2008)

The mine expansion plans included the completion of a definitive cost estimate for conventional, thickened and paste tailings disposal for a number of expansion plan scenarios. The study included a review of the current system's capacity, as well as the future pumping requirements to existing and new disposal sites.

Akanani Mine, South Africa (2008)

Angus was the project director for the feasibility study and cost estimate of the paste backfill system for Lonmin's proposed new platinum mine, Akanani. The study included comprehensive pilot plant test work, backfill strength test work, and design and costing of several paste plant and underground backfill piping scenarios.

Ticor Fairbreeze Mine, South Africa (2001/2)

Angus was the project director responsible for P&C's role in the development of the new Fairbreeze Mine. In 2002 P&C assisted Ticor with the feasibility and planning of the location of the Fairbreeze Mine near Richards Bay. During 2005 and 2006 P&C completed the detailing design and engineering of the fine tailings pipeline, the sand disposal systems and the return water pumping systems.

Kimberley Mines, South Africa (1999/2001)

Angus was responsible for investigating alternative tailings pumping systems for the proposed Central Treatment Plant Mixed Dumps Reclamation Project in Kimberley. P&C completed the front end engineering and specification of 12 MPa thickened tailings pumping system.

Southern Peru Copper Corporation (2001/2)

P&C, together with Knight Piésold Consulting, completed a feasibility study for the disposal of 150 000 tonnes per day of thickened paste tailings. Angus was the P&C project director responsible for the study. The study included laboratory tests, on site pilot plant test work and a detailed analysis of the transport system and process requirements to produce thickened paste tailings.

Bamangwato Concessions Limited, Botswana (1996/7)

Angus was responsible for the feasibility study and assessment of different options to prepare and transport classified tailings underground. P&C completed the front end design, basic engineering, and supervised commissioning of the backfill plant.

Publications

Mulligan, M.C., Paterson, A., J., C. and van Sittert, F., "An Integrated Approach to Paste Thickening and Pumping at the Voorspoed Diamond Mine", Paste 2009, Australian Centre for Geomechanics, Vina del Mar, Chile, April 2009.

Paterson, A., J., C., Houman, J. and van Sittert, F., "Quantifying the Effect of Pump Shear on Slurry Rheology: A Case Study at the Combined Treatment Plant", Paste 2007, Australian Centre for Geomechanics, Fremantle, Australia, April 2007.

Paterson, A., J., C., "Rheology Control of Paste and Thickened Tailings Systems", Paste 2006, Australian Centre for Geomechanics, Limerick, Ireland, April 2006.

Paterson, A., J., C., "Determining the Optimum Location of a High Rate Thickener for a Thickened Tailings System", Paste 2005, Australian Centre for Geomechanics, Santiago, Chile, April 2005.

Paterson, A.J.C. "High Density Slurry and Paste Tailings Transport Systems", International Platinum Conference 'Platinum Adding Value, South Afr. Ins. Mining and Metallurgy, South Africa, 3-7 October 2004

Paterson, A.J.C., Salas, U.O and Williamson, J.R.G. "Hydraulic transport considerations for high density thickened copper tailings at Southern Peru Copper Corporation", 16th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 16, Chile, April 2004.

Paterson, A.J.C., Salas, U.O and Williamson, J.R.G. "Paste Tailings Disposal on a Major Scale at Southern Peru Copper: A Case Study", Paste 2004, Australian Centre for Geomechanics, Cape Town, South Africa, April 2004.

Goosen, P.E., Krause, B., Paterson, A.J.C, Paulsen, E. "Variable rheology of heavy mineral tailings", HMC 2003 Heavy Minerals Conference, Cape Town, South Africa, October 2003.

Paterson, A.J.C. "The hydraulic design of paste transport systems", Paste 2003, Melbourne, Australia, April 2003.

Paterson, A.J.C. "High density and paste slurry transport systems", 4th One day seminar on hydraulic transport in the mining industry, Johannesburg, South Africa, April 2003.

Paterson, A J C. "Design of Thickened and Paste Tailings Pumping Systems", De Beers Process Manual, 2003.

Paterson, A.J.C. "Is Slump a Valid Measure of the Rheological Properties of High Concentration Paste Slurries?", 15th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 15, Canada, June 2002.

Paterson A., Johnson G., Vietti A., (1999): "Case Study: Pumping High-Density Kimberlite Tailings", 14th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 14, Maastricht, The Netherlands, September 1999.

Paterson A., Johnson G., Vietti A., (1999): "Analysis of the Flow Behaviour of High-Density Non-Newtonian Kimberlite Tailings", 14th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 14, Maastricht, The Netherlands, September 1999.

Paterson AJC, Vietti, A, Derammelaere, RR, Hester, H, (1999) "Future Trends: Waste Disposal of High Concentration Kimberlite Tailings", 101st Annual General Meeting of Canadian Institute of Mines, Calgary, May 1999.

Earlier publications available on request.