

Peter Goosen, Pr Eng.



Peter has been involved in the hydrotransport industry since 1990 and has gained extensive experience in this field.

- In 1989 Peter worked as a design engineer in Namibia on several water supply and sanitation schemes.
- In 1990 he began his postgraduate studies at the Hydrotransport Research Facility at the University of Cape Town and was awarded his Masters Degree in 1992.

Since 1993, he has been involved in a number slurry pipeline projects with Paterson & Cooke. Peter was initially responsible within Paterson & Cooke for managing all slurry related laboratory work. Peter has since also gained extensive design experience through involvement in many slurry pipeline projects. Peter is now the manager responsible for overseeing hydraulic design and development of slurry related hydraulic design capability in the Cape Town office

Qualifications

1989, BSc (Civil) Eng,
University of Cape Town

1992, MSc Eng,
University of Cape Town

Professional Status

PrEng (Registered
Number 980162)

Member of the South
African Institute of Civil
Engineers

Specialization

Notable Projects

Orapa and Jwaneng Diamond Mines, Botswana

Pre-Feasibility studies considering alternates for water savings and upgrade to slimes thickening and pumping systems (paste and thickened tailings). Paterson & Cooke's scope ran from lab scale thickener sizing test work through to specialist input on paste, thickened tailings and other slurry streams within the process.

Malmbjerg Molybdenum Project, Greenland

Feasibility study design and cost estimate for a 35 km tailings pipeline and pumping system to a submarine tailings disposal site. The pipeline route includes a significant elevation drop from the plant site to sea level. The tailings pipeline system includes a piston diaphragm pump station at the plant site and a choke station located along the route to control the pipeline operation.

Pebble Gold / Copper Project, Alaska

Feasibility study for a 150 km concentrate slurry pipeline, return water pipeline and diesel supply pipeline for the proposed Pebble Gold Copper Project in Alaska. Responsible for managing design work and preparation of study documentation. This project was undertaken in joint venture with BRASS Engineers, in the USA.

Cuiabá Mine Backfill System, Brazil

Responsible for engineering and costing of backfill preparation facilities for a feasibility study into surface tailings disposal and a classified hydraulic backfill system for AngloGold's Cuiabá Mine.

Ambatovy Nickel Laterite Project, Madagascar

Responsible for the hydraulic design in a pre-feasibility study for a nickel laterite ore pipeline system comprising a 240 km gravity ore pipeline, tailings pumping system and return water pumping system.

Lisheen Mine, Ireland

Responsible for the hydraulic design of the backfill distribution piping system.

Jwaneng Diamond Mine, Botswana

Responsible for an extensive study into the feasibility and cost of upgrading all slimes handling facilities on the mine to accommodate the implementation of co-thickening (the combined disposal of kimberlite clay slimes slurry and -1.5 mm grits into tailings dams) at Jwaneng Mine.

Myra Falls Operations, Canada

Responsible for the hydraulic design of an underground paste reticulation system associated with a proposed paste preparation plant to be installed for surface paste tailings disposal.

Cleveland Potash, England

Responsible for supervising on-site pipeline test work on a backfill pilot plant to characterise the flow behaviour of alternative backfill slurry mixes considered for a system for the placement of waste residue underground. PCCE later completed the hydraulic design of the backfill system and front-end engineering of the backfill plant. The system was successfully commissioned in 2003.

Serina Kaolin, South Africa

Responsible for the design and project management of a process plant upgrade for Serina Kaolin, involving the installation of a new cyclone circuit, associated pumps and screening plant. The plant was commissioned in January 2000.

Orapa Diamond Mine, Botswana

Assisted with on-site tests to characterise the flow behaviour of high density kimberlite tailings produced by a pilot plant high-rate thickener installation.

ESKOM (Electricity Supply Authority), South Africa

Extensive test and research programme into the problem of pipeline wear experienced in boiler ash disposal pipelines. This included a review of all of all of Eskom's ash slurry pipeline systems. The performance of a number of wear resistant pipe and pipe lining materials was evaluated in terms of wear resistance and cost effectiveness in service.

Serina Kaolin, South Africa

Responsible for laboratory pipe loop tests to characterise kaolin and kaolin / mica slurries for the design of a 5.5 km slurry pipeline for Serina Kaolin. Also detail design for the pipeline and pumping plant and supervision of construction. Particular responsibility for quality control of the butt welding of the HDPE pipeline. The pipeline was commissioned in 1996 and has operated reliably without any significant problems to-date.

Publications

Goosen, P.E., Cooke, R. (2007): "Hydraulic Scale Model Tests for Slurry Handling Equipment", 17th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 17, Cape Town, South Africa, May 2007.

Goosen P. (2004): "Design Guidelines for In-Plant Slurry Pipeline Systems", 12th Int. Conf. on Transport and Sedimentation of Solid Particles, Prague, Czech Republic, September 2004.

Goosen P., du Toit J. (2004): "Development of a novel viscometer for use with FeSi and magnetite dense medium slurries", Mineral Processing 2004, South African Institute of Mining and Metallurgy, Cape Town, South Africa, August 2004.

Paterson A., Goosen P., Paulsen E., Krause B. (2003): "Variable Rheology of Heavy Mineral Tailings", Proc. Heavy Minerals 2003, South African Institute of Mining and Metallurgy, Cape Town, South Africa, October, 2003.

Goosen P. (2003): "Rheological Characterisation and Flow Modelling of Kimberlite Slurry", Proc. 4th One Day Seminar on Hydraulic Transport in the Mining Industry, Hydraulic Conveying Assoc. of SA, Johannesburg, South Africa, April 2003.

Fehrsen M.G., Goosen, P.E., Wilkins, M.J. (2002): "On-site Backfill Slurry Characterisation Tests at Boulby Mine - A Case Study", 15th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 15, Banff, Canada, June 2002.

Cooke R., Johnson G., Goosen P.E. (2000): "Laboratory Apparatus for Evaluating Slurry Pipeline Wear", South African Institute of Tribology Seminar, Johannesburg, South Africa, March 2000.

Goosen P., Malgas I., (1999) : "An Experimental Investigation into aspects of Wear in Boiler Ash Disposal Pipelines", 14th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 14, Maastricht, The Netherlands, September 1999.

Cooke, R., Goosen, P. (1996) : "Design and Construction of the Noordhoek Kaolin Slurry Pipeline", 13th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 13, Johannesburg, South Africa, September 1996.

Cooke, R., Goosen, P., (1994): "Noordhoek Kaolin Slurry Pipeline", Proc. Slurry Transport in the Mining Industry (III), Hydraulic Conveying Association of S. A., 14 November 1994.

Goosen, P., Cooke, R. (1994): "Hydraulic Backfill Distribution System Design for Raposos Gold Mine", Proc. Slurry Transport in the Mining Industry (III), Hydraulic Conveying Association of S.A., November 1994.

Goosen, P.E., Lazarus, J.H. (1993) : "Models for the Flow of High Concentration Backfill Slurries", 12th Int. Conf. on Slurry Handling and Pipeline Transport, Hydrotransport 12, Belgium, September 1993.

Goosen, P.E., Cooke, R., Lazarus, J.H. (1992) : "Hydraulic Transport of Heavy Mineral Concentrates by Pipeline", Proc. 7th Int. Symp. on Freight Pipelines, Wollongong, Australia, July 1992, p. 109-113.

Goosen, P.E., Cooke, R., Lazarus, J.H. (1991): "Hydraulic Transport of Heavy Mineral Concentrates by Pipeline", Proc. Slurry Transport in the Mining Industry (II) - Hydraulic Conveying Association of S.A.