



Me Fredré Dunn is one of the directors of the Johannesburg office of Paterson & Cooke, having founded the company together with Mr Andrew Vietti in 2005.

Fredré has been involved in the diamond mining industry for 7 years where she developed expertise in the field of Paste and Thickened Tailings Disposal.

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

### Qualifications

1996, BEng. Chemical – Mineral processing. University of Stellenbosch

2005, MSc. Civil Eng, University of Witwatersrand

### Specialization

Clay mineral behaviour

Laboratory scale and pilot plant scale evaluation of Paste systems

Water recovery and tailings disposal

Co-disposal of tailings

### Notable Projects

#### **Namakwa Sands Thickening Circuit, Anglo American, South Africa (2005)**

Independent audit and review of existing thickening circuit at the Namakwa Sands Brand se Baai plant.

#### **Muskeg River Mine Thickened Tailings Pilot Plant Design Review, Shell, Canada (2006)**

Detailed design review of the new thickened tailings pilot plant, which incorporated slurry behaviour modification, paste thickening and co-disposal of sand and fines streams.

#### **Ekati Mine, Slurry Coagulation Strategy, BHP Billiton, Canada (2006)**

Problematic clay behaviour was addressed through manipulation of the slurry colloidal behaviour, which led to the development and recommendation of a slurry coagulation strategy for implementation at the process plant.

#### **AK6 Water Recovery and Tailings Disposal Pilot Test Campaign, De Beers/African Diamonds, South Africa (2007)**

Pilot test campaign conducted at P&C laboratory in Cape Town to provide a complete set of measured data for the thickening, pumping and disposal aspects of the project as input to the process design for the water recovery and tailings disposal circuit of the AK6 project.

#### **Star Project, Shore Gold, Canada (2007)**

Paste thickening feasibility study.

#### **Mumi Project, Hydromet / Paradigm Project Management, DRC (2008)**

CCD paste thickening feasibility study.

#### **Tongon Project, Senet / Randgold, Ivory Coast (2008)**

Characterisation of water recovery process behaviour of the main ore types. Thickener sizing exercise.

#### **Mogalakwena Project, Anglo Platinum, South Africa (2008/2009)**

Manufacture and supply of paste thickening pilot plant. On-site paste thickener pilot plant trials.

#### **Driefontein Uranium Project, Gold Fields, South Africa (2009)**

Characterisation of water recovery process behaviour of the main ore types. Thickener sizing exercise for in process and tailings thickeners.

#### **Mumi Project Phase II, Senet, DRC (2010)**

Characterisation of water recovery process behaviour of chemical precipitates in copper/cobalt process.

#### **Toquepala Mine Upgrade, Southern Copper Corporation, Peru (2010)**

Technical review of on-site thickener vendor test work for thickener sizing.

## Publications

Vietti, A.J., Dunn F. "The thirsty business of diamond mining", Int. Seminar on Paste and Thickened Tailings, Santiago, Chile, April 2002.

Dunn F., "P&TTD as an alternative tailings disposal technique for small scale mining", Green Technologies Conference, World Summit on Sustainable Development, Mintek, Johannesburg, August 2002.

Editors : Vietti, A.J., Dunn F., "Paste and Thickened Tailings Disposal Handbook", De Beers Consolidated Mines, September, 2003.

Vietti, A. J., and Dunn, F., "Another dimension to slump", 9<sup>th</sup> Int. Seminar on Paste and Thickened Tailings, Limerick, Republic of Ireland, 2006.

Vietti, A.J., Dunn F., "Manipulation of Slurry Colloidal Behaviour to Optimise the Paste and Thickened Tailings Disposal Process", Proceedings SAIMM Solid Liquid Colloquium, Johannesburg, 2006.

Vietti, A.J.; Dunn, F.; Cooks, M.; Busani, B. "A Water Recovery Comparison between Two Kimberlite Paste Systems", Int. Seminar on Paste and Thickened Tailings, Perth, Australia, March 2007.

Fourie, A.B. and Dunn, F. "Limitations to the Use of the Modified Slump Test for Yield Stress Determination", Int. Seminar on Paste and Thickened Tailings, Perth, Australia, March 2007.