CHAPTER 9 REFERENCES

- Barenbrug AWT, 1961. The economic aspect of reducing shaft resistance. *Journal of the South Africa Institute of Mining and Metallurgy*, October.
- Barenbrug WT, 1962. Contribution to discussion analysis of airflow in downcast shafts with reference to the trailing hose method of resistance measurement. *Journal of the Mine Ventilation Society of South Africa*, April.
- Bareza M and Martinson MJ, 1961. Ventilation resistance of some vertical downcast shafts in the Rand Mine Group. *Journal of the South African Institute of Mining and Metallurgy*, October.
- Berkoe JM and Lane DM, 2000. Putting computational fluid dynamics to work on the mining and minerals project. SME Annual Meeting, February.
- Biffi M, Stanton D, Rose H and Pienaar D, 2006. Ventilation strategies to meet future needs of the South African platinum industry. The Southern African Institute of Mining and Metallurgy, Johannesburg.
- Botha BJR and Taussig SG, 1961. The effect of equipment changes in existing shafts. *Journal of the South African Institute of Mining and Metallurgy*, October.
- Bromilov JG, 1960. The estimation and the reduction of the aerodynamic resistance of mine shafts. *Transactions of the Institution of Mining Engineers*, May.
- Brunner DJ, Miclea PC, McKinney D and Marthur S, 1995. Examples of the application of computational fluid dynamics simulation to mine and tunnel ventilation. Proceedings of the 7th US Mine Ventilation Symposium, June.
- Casati JAL and Martinson J, 1962. Scale model test on No. 4 Shaft Coty Deep Limited. *Journal of the South Africa Institute of Mining and Metallurgy*, March.
- Chamber of Mines of South Africa, 2010. *Annual Report 2009–2010*, Mining, 2010, p 31.
- Chasteau VAL. 1959. Investigation into the resistance to airflow of the Pioneer

Shafts at Buffelsfontein Gold Mining Co, Ltd (Part II). *Journal of the Mine Ventilation Society of South Africa*, June.

- Chasteau VAL, 1961. Investigation into the resistance to air flow of No. 1 Shaft, Vaal Reefs Exploration and Mining Company (Paper II). *Journal of the Mine Ventilation Society of South Africa*, January.
- Chasteau VAL, 1962. Equipment and techniques used for scale model investigations of mine shaft resistance to air flow in the CSIR laboratories. *Journal of the Mine Ventilation Society of South Africa*, May.
- Chasteau VAL, 1989. Fundamentals of fluid flow. In: *Environmental Engineering in South African Mines*, Chapter 1. Johannesburg: The Mine Ventilation Society of South Africa.
- Chasteau VAL and Kemp JE, 1962. Further results of scale model measurements of mine shaft resistance to airflow by the CSIR. *Journal of the Mine Ventilation Society of South Africa*, June.
- Deen, JB, 1991. Field verification of shaft resistance equations. Proceedings of the 5th Mine Ventilation Symposium, June, pp 647–655.
- Du Plessis AG, Wymer DG and Joughin NC, 1989. Equipment alternatives for stoping in gold mines. *Journal for the South African Institute of Mining and Metallurgy*, 89(12).
- Du Plessis JJL and Marx WM, 2007. Main fan power control. Presented at the Conference of the Mine Ventilation Society of South Africa, May.
- Eskom Holdings Limited, 2009. *Annual Report 2008*.
- Eskom Holdings Limited, 2010. *Annual Report 2009*.
- Eskom Holdings Limited, 2011. *Annual Report 2010*.
- Eskom, 2011. Tariff Book.
- Fraser P and Le Roux D, 2007. Three-chamber pump systems for DSM, *Energize*, December.

– Fytas K and Gagnon C, 2008. A database of ventilation friction factor for Quebec underground mines. Presented at the 12th North American Mine Ventilation Symposium, October.

– Graig K, 2001. Report on CFD analysis of bunton sections. Report prepared for Anglo Operation Limited, November.

– Graves DFH, 1961. Research into shaft resistance. *Journal of the Mine Ventilation Society of South Africa*, September.

– Graves DFH, 1962. Airflow resistance in downcast shafts equipped with streamlined buntons. *Journal of the South African Institute of Mining and Metallurgy*, June.

– Hartman HL, Mutmansky JM, RV Ramani and Wang YJ. 1997. *Mine Ventilation and Air Conditioning*, 3rd edition. New York: Wiley.

– Hemp R, 1975. Density patterns in some vertical downcast shafts. Proceedings of the International Mine Ventilation Congress, Johannesburg.

– Hemp R, 1979. A method for analysing pressure survey measurements. *Journal of the Mine Ventilation Society of South Africa*, 32: 1.

– Hemp R, 1989. Pressure surveys. In: *Environmental Engineering in South African Mines,* Chapter 6. Johannesburg: The Mine Ventilation Society of South Africa.

– Hustrulid WA and Bullock RL, 2001. Underground mining methods – Engineering fundamentals and international case studies. Littleton, Colorado: Society for Mining, Metallurgy, and Exploration.

– Jade RK and Sastry BS, 2008. An experimental and numerical study of two-way splits and junctions in mine airways. Presented at the 12th North American Mine Ventilation Symposium.

– Deen BD, 1991. Field verification of shaft resistance equation. Proceedings of the 5th Mine Ventilation Symposium, June.

– Kemp JF, 1962. Analysis of the air flow in downcast shafts with reference to the trailing-hose method of resistance measurement. *Journal of the Mine*

Ventilation Society of South Africa, January.

- Krishna R, 1992. Research on the economic design of mine ventilation systems. Proceedings of the 6th Mine Ventilation Symposium.

- Lambrechts, JdeV and Deacon TE, 1962. Improvements in ventilation capacity by smooth lining of upcast shafts. *Journal of the South Africa Institute of Mining and Metallurgy*, February.

- Lloyd F, 1989. Main ventilation practice. In: *Environmental Engineering in South African Mines,* Chapter 10. Johannesburg: The Mine Ventilation Society of South Africa.

- Macfarlane AS, 2005. Establishing a new metric for mineral resource management. Proceedings of the First International Seminar on Strategic versus Tactical Approaches in Mining. Johannesburg: The South African Institute of Mining and Metallurgy, September.

- Martinson MJ, 1957. Determining the friction factors of Nos 2 and 3 Shafts, Harmony Gold Mining Co, by means of scale models. *Journal of the Mine Ventilation Society of South Africa*, March.

- Martinson MJ, 1962. Contribution to discussion on airflow resistance in downcast shafts equipped with streamlined buntons. *Journal of the South African Institute of Mining and Metallurgy*, June.

- Marx WM, Von Glehn FH and Wilson RW, 2008. Design of energy efficient mine ventilation and cooling systems. Proceedings of the Mine Ventilation Society Annual Conference, Pretoria, May.

- McPherson MJ, 1971. The metrication and rationalisation of mine ventilation calculations. *Mining Engineer (UK)*, 130(131: 729–738.

- McPherson MJ, 1987. The resistance to airflow of mine shafts. Proceedings of the 3rd Mine Ventilation Symposium, October.

- McPherson MJ, 1993. *Subsurface Ventilation and Environmental Engineering*, 2nd edition. Clovis, CA, US: MVS Engineering, pp 9–23.

– Meyer JP and Marx WM, 1993. The minimising of pressure losses in a fan drift-mine shaft intersection, using computational fluid dynamics. *R&D Journal*, 9(3).

– Musingwini C, Minnitt RCA and Woodhall M, 2006. Technical operating flexibility in the analysis of mine layouts and schedules. Proceedings of the International Platinum Conference "Platinum Surges Ahead", South African Institute of Mining and Metallurgy, Johannesburg, October.

– NERSA (National Energy Regulator of South Africa), 2010. Multi-year price determination 2010/11 to 2012/13. Report MYPD 2, Pretoria: NERSA.

– Pankhurst, RC. 1964. *Introductory Survey. Dimensional Analysis and Scale Factors*. London: Chapman and Hall, pp 13–19, 53–55.

– Petit PJ, 2006. Electric rock drilling system for in stope mining in platinum operations. Proceedings of the International Platinum Conference "Platinum surges Ahead", South African Institute of Mining and Metallurgy, Johannesburg, October.

– Prince LJ, 1961. Contributions for discussion for the economic aspect of reducing shaft resistance. *Journal of the South Africa Institute of Mining and Metallurgy*, December.

– Quilliam JH, Finn PJ, Graves DFH and Martinson MJ, 1961. Investigation into the resistance to air flow of No. 1 Shaft, Vaal Reefs Exploration and Mining Company (Paper I). *Journal of the Mine Ventilation Society of South Africa*, January.

– Ruglen N, Wilson PH, 1978. Aerodynamic Studies of Shaft / Airway Intersection Losses and Mine Cage Resistance. The Australian Institute of Mining and Minerals Conference, North Queensland, September.

– Seeber HC, 2002. Ventilation – Understanding the factors affecting air resistance and their implications on mine operating and capital costs. Presented at the SME Annual Meeting, February.

– Statistics South Africa, 2011a. Mining: Production and Sales. Statistical Release P2041, May, p 10.

– Statistics South Africa, 2011a. Electricity Generated and Available for

Distribution. Statistical Release P4141, March.

– Statistics South Africa, 2011c. Gross Domestic Product, Fourth Quarter 2010. Statistical Release P0441, February, p 9.

– Stevenson A, 1956. Mine ventilation investigation. Shaft pressure losses due to cages. Unpublished thesis, Royal College of Science and Technology, Glasgow. Also as: The estimation and the reduction of the aerodynamic resistance of mine shafts. *Transactions of the Institution of Mining Engineers*, Glasgow.

– The Mine Ventilation Society of South Africa. 1989. Johannesburg: *Environmental Engineering in South African Mines*.

– Uhlmann HLB , 1961. Economic value in fluid flow. *South African Mechanical Engineer*, October: 105–106.

– Unsted AD and Benecke KC, 1978. Some observations on the effects of a large cage in a downcast shaft. *Journal of the Mine Ventilation Society of South Africa*, March.

– Van Wyk CFB, 1961. A review of progress in the design of shaft equipment aimed at a reduction in shaft resistance. *The South African Mechanical Engineer*, August.

– Wala A, Yingling JC, Zhang J and Ray R, 1997. Validation study of computational fluid dynamics as a tool for mine ventilation design. Proceedings of the 6th International Mine Ventilation Congress, May.

– Wala A, Vytla S, Taylor C and Huang G, 2007. Mine face ventilation: A comparison of CFD results against benchmark experiments for the CFD Code validation. US: National Institute for Occupational Safety and Health (NIOSH).

– Wallace KG and Rogers GK, 1987. Airflow in ventilation and hoisting shafts. Proceedings of the 3rd Mine Ventilation Symposium, October.

– Wells, HM, 1973. Influence of economics on the design of mine shaft systems. *Journal of The South African Institute of Mining and Metallurgy,* 73(10): 325–338.

– White FM, 1986. *Fluid Mechanics,* 2nd edition. New York: McGraw-Hill, pp 308–

314.

– Wills J, 2008. Hydropower and stope drilling systems – An energy saving perspective. Proceedings of the Narrow Vein and Reef Conference, South African Institute of Mining and Metallurgy, Johannesburg, October.

– Wilson RW, Bluhm SJ, Smit H and Funnel RC, 2003. Surface bulk air cooler concepts producing ultra-cold air and utilising ice thermal storage. Proceedings of the Mine Ventilation Society Annual Conference, “Managing the Basics”, Pretoria, February.

Appendices

All of the appendices are contained in separate files.

APPENDIX A:

CALCULATIONS FOR THE 'MODEL' MINE

See Separate Files

APPENDIX B:

INITIAL TEST METHODOLOGIES

See Separate Files

APPENDIX C:

VERIFICATION OF RESULTS OF THE QUOTED PAPERS

See Separate Files

APPENDIX D:

RESULTS OF TESTS FOR 14 SHAFT

See Separate Files

APPENDIX E:

RESULTS OF TESTS FOR 11 SHAFT

See Separate Files

APPENDIX F:

RESULTS OF TESTS FOR 11C SHAFT

See Separate Files

APPENDIX G:

RESULTS OF TESTS FOR 1 SHAFT

See Separate Files

APPENDIX H:

RESULTS OF TESTS FOR 12N SHAFT

See Separate Files