

APPENDIX 10: CV'S VITAE OF EAPS & SPECIALISTS

Name	Theo E Fischer
Date of Birth	20 January 1974
Nationality	South African
Identity Number	7401205004081
Sex	Male
Marital Status	Unmarried
Language	English and Afrikaans

Qualifications

- BSc Nat Sci (Chemistry & Geography) University of Pretoria 1996

Memberships

- National Association of Clean Air (NACA)
- International Association of Impact Assessment (IAIAsa)
- Institute for Waste Management
- Geological Society of South Africa

Key Experience

Ten years of environmental management experience, largely in the industrial and natural resource sectors. Major focus areas include:

- **ISO 14001 environmental management system development** and implementation for clients such as Holcim, Samancor and others.
- **Auditing industrial installations** across various sectors, including Shell Petroleum Development Company Nigeria.
- **Environmental impact assessment** and EIA project management.
- **Mine rehabilitation and closure planning.**
- **Due diligence** assessments.
- **Environmental liability** modelling, including Samancor and Highveld Steel & Vanadium.
- **Contaminated land and groundwater rehabilitation** such as at Chemiphos, Kanhym and others



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- **Specialist training** including training material development and training in environmental compliance enforcement for Department of Environmental Affairs & Tourism Environmental Management Inspectors (**Green Scorpions**).
- **Specialist training** including training material development and training in Environmental Impact Assessment Review for Department of Environmental Affairs & Tourism and Provincial Environmental Officials to build capacity in NEMA 2006 EIA Regulation EIA review.
- **Management of hazardous waste** including handling, storage, analysis and classification as well as the development of **waste minimisation, treatment and recycling strategies** for clients including Alumicor and Hayes Lemmerz.
- **Air quality management** including the Ekurhuleni Air Quality Management Plan, **emissions inventories and reduction strategies** for Alumicor and Hayes Lemmerz.
- **Developed air quality biomonitoring methods** for monitoring Chrome (VI).
- **Environmental legal compliance** assessment as a technical specialist at Holcim, Natal Portland Cement, Tongaat Hulett's, PG Bison, Mondipak and others.
- **Presented papers** at the NACA, IAIAAsa and IWMSA annual conferences.
- **Published peer reviewed papers** dealing on air quality biomonitoring and waste management legislation applicable to the EIA process respectively.
- Interests range from the use of metallurgical slags (by-products of the ferroalloy industry) as aggregate replacements in the construction industry, to the use of lichens as biomonitors of air quality.

Employment History & Project Experience

Environmental Science Associates
Present

1999 –

Environmental assessment

Environmental impact assessments for the following development proposals:

- Alumicor secondary aluminium recovery rotary salt smelters
- Hays Lemmerz Aluminium furnace & alloy die casting
- Expansion of Chemiphos SA (Pty) Ltd Phosphoric Acid Plant
- Teza Quarry and Access Road Development
- Steelpoort residential development
- Waterval Prison Agricultural Sewerage System Upgrade
- Bluegumsbosch Cemetery Qua-Qua
- Swaziland Main Roads MR2 And MR20
- South African Provincial Road K77
- The Ressano Garcia/Komati Poort Combined Borderpost



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Environmental impact assessment review:

- Resort development on farm Epsom 189 KT Limpopo Province

Strategic environmental assessment:

- Steelpoort Town Development
- Csakvar International Airport

Environmental management system auditing

Auditing Shell Petroleum Development Company (SPDC) of Nigeria environmental management systems as Lead/ Process Auditor for KPMG Environmental Health & Safety Unit, KPMG Sustainability Services.

- SPDC Production Area West PCW
- SPDC Production Area East PAE
- SPDC Pipelines East
- SPDC Pipelines West
- SPDC Bonny Crude Oil Export Terminal
- SPDC Forcados Crude Oil Export Terminal
- SPDC Geomatics
- SPDC Seismics

Environmental management system development and implementation

- Holcim Slagment, including air emission and waste management
- Holcim Roodepoort, including air emission and waste management
- Foskor Richards Bay Division
- Chemiphos SA (Pty) Ltd

Due diligence assessment

Due diligence assessment on behalf of the buyer:

- Audit, quantification of environmental liability and sale negotiations were conducted for the purchase of Samancor Chrome from BHP Billiton by Kermas. Audit of Samancor Chrome Division of Samancor Ltd included:
 - Middelburg Ferrochrome
 - Ferrometals
 - Tubatse Ferrochrome
 - Western Chrome Mines
 - Eastern Chrome Mines

Due diligence assessment undertaken on behalf of seller:

- Chemiphos SA (Pty) Ltd

Environmental management programme reports and closure plans

EMPR's in terms of the Minerals Act of 1991 and the Minerals & Petroleum Resources Development Act of 2004:

- Teza Borrow Pit EMPR and closure plan



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- Montrose Diamond Mine EMPR and closure plan

Environmental Legal Compliance Audits

Environmental legal compliance assessments, where necessary in conjunction with environmental law specialists, for the following companies and operations:

- Samancor Manganese Division: Samancor Metalloys Meyerton
- Holcim SA (Pty) Ltd: Dudfield, Ulco, Roodepoort and Slagment cement plants
- Tongaat Hulette: Hillhead and Tongaat sugar cane estates
- Tongaat Hulette: Amitakulu, Felixton, Maidstone and Darnall sugar mills
- Rand Water (Waste legislation): Zwartkopjes, Vereeniging, Zuikerbosch pumping stations
- Rand Water (Waste legislation): Rietfontein and Central depot sites
- Natal Portland Cement: Durban, Newcastle, and Simuma (Port Shepstone) cement plants
- South African Airways Technical Division (Johannesburg International Airport)
- TWK Holdings Forestry (Pty) Ltd
- Chemiphos SA (Pty) Ltd
- Dunlop Africa (Pty) Ltd
- Eskom Rotek Engineering (Pty) Ltd
-

Cleaner production, waste treatment and management strategies

Waste minimisation, re-use or treatment processes:

- Alumicor Sa (Pty) Ltd: rotary smelter salt slag treatment and recycling strategies
- SAB Miller SA (Pty) Ltd: SAB Chamdor Brewery: filtration waste treatment and recycling strategies
- Chemiphos SA (Pty) Ltd: arsenic sludge treatment and disposal options to prevent leaching of arsenic
- Ferrochrome producers: chrome (VI) containing bag filter dust treatment to reduce chrome (VI) and prevent leaching of metals

Waste classification and hazard rating in terms of the DWAF Minimum Requirements or US EPA.

Development of waste treatment processes for hazardous waste delisting.

Soil and groundwater contamination assessment and rehabilitation

- SABAT (Pty) Ltd Johannesburg: investigation of heavy metal contamination
- Chemiphos SA (Pty) Ltd: investigation of soil phosphate and heavy metal contamination



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Air quality assessment and emissions modelling

- Contributed to the development of the Ekurhuleni Air Quality Management Plan and assisted in various emissions screening assessments using the US EPA Screen 3 Model
- Assisted in screening assessment of Alumicor secondary aluminium recovery rotary salt furnaces: Screen 3 Model
- Assisted in screening assessment of Holcim Roodepoort Cement Mills and Materials Management: Screen 3 Model

Air quality biomonitoring: asbestos

- First application of lichen bio-monitoring as an indicator of environmental asbestos pollution (Fischer TE & Cukrowska E, 2004, unpublished).

Air quality Biomonitoring: chrome (VI)

- First application of lichen metal content bio-monitoring as an indicator of ambient air quality in South Africa (Fischer TE & Cukrowska E, 2002, unpublished). Lichens were analysed for Chrome(VI) to determine Cr(VI) fallout levels from a nearby ferrochrome smelter.

Training

- 2005&6 Bridging Training for Environmental Management Inspectors

ESA was part of a consortium selected to develop the EMI Bridging Training. ESA compiled and presented the chapter on routine inspections. A total of 420 officials have completed the training, which was an IAIAAs Premium Project finalist in 2006.

- 2004&5 Training of EIA Component of SABS Environmental Law Course

Landscape Architects Uys & White (Pty) Ltd**1997 – 1999**

Senior Environmental Manager

Environmental Assessment:

- environmental impact assessment
- strategic environmental assessment
- environmental management frameworks

Resource Development Planning:

- analysis of resource and tourism asset bases
- tourism potential assessment and development planning

Gouws Uys & White (Pty) Ltd**1996 – 1997**

Environmental Scientist

Environmental Assessment:

- environmental impact assessment
- strategic environmental assessment
- environmental management frameworks



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Du Boisson & Partners**1995 – 1996**

Biochemistry Laboratory Assistant

Specialising in pathological analysis, responsibilities included:

- routine chemical analysis of samples
- gas chromatographic, UV spectrophotometric analysis of samples
- reagent preparation
- miscellaneous lab assistance

Education

1980-1986	Queenswood Primary School	
1987-1991	Willows Secondary School	
1992-1996	BSc Nat Sci (Chemistry & Geography)	University of Pretoria
1998	Understanding SABS ISO 14001	South African Bureau of
Standards		
1998	Groundwater Modelling MODFLOW	University of Zululand
2000-2001	BSc(Hons) Env Mgt [year 1 of 2 part time]	University of Pretoria



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Name	Roger E Diamond
Date of Birth	4 July 1972
Nationality	South African
Identity Number	7207045059080
Sex	Male
Marital Status	Unmarried
Language	English and Afrikaans

Qualifications

- | | | |
|--------------------------|-------------------------|------|
| ▪ BSc (Geology) | University of Cape Town | 1993 |
| ▪ BSc(Hons) Geochemistry | University of Cape Town | 1994 |
| ▪ MSc Geology | University of Cape Town | 1997 |

Key Experience

One year experience in exploration geology in Western Australia.

Three years experience in hydrogeology in Western Australia.

Four years experience in environmental management in the Western Cape, specializing in waste management.

- **Gold exploration** utilizing geophysics, geochemistry, field mapping and extensive drilling across a variety of prospects, including proving resources that have since been mined.
- **Groundwater quality investigation** of agricultural pollution of groundwater that feeds a river and an estuary. Drilling, sampling, analysis and reporting, including presentation to the community.
- **Aquifer pumping tests** of a semi-confined and unconfined aquifer.
- **Salinity investigations** relating to naturally occurring saline groundwater and changes in the hydrological regime due to extensive agriculture.
- **Construction of 500m deep monitoring bores** in public water supply aquifers that feed Perth.
- **Investigation of mine dewatering and pit voids**, possibly leading to salinization of the aquifer.
- **Interrogation of State database and use of GIS** to prospect for town water supply.
- **Various groundwater quality investigations** around a municipal waste site, a sewerage treatment works, an industrial facility, etc.



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- **Establishment of a corporate environmental responsibility programme**, including branding, marketing and education. Established an indigenous roof garden on a city centre office block.
- **Development of health care waste management legislation**, including research, drafting, workshopping with stakeholders, publishing in the government gazette, etc.
- **Promotion of cleaner production in the hospitality sector** through auditing of several establishments (water, energy and waste) and conceptualization of a green rating system.
- **Review and commenting on environmental impact assessments** including projects such as regional landfills, transfer stations, composting facilities, a fertilizer factory site remediation and the Pebble Bed Modular Reactor Nuclear Power Station.
- **Design and supervision of environmental remediation** by local authorities, including wetlands and streamlines.
- **Promotion of recycling** through extensive networking, knowledge sharing and assisting the public.

Employment History & Project Experience

Environmental Science Associates
Present

June 2007 -

Project Management & Development Manager

Key Projects

- SASOL Synfuels environmental legal compliance audit.
- Groundwater site investigation for a proposed chrome chemicals plant.
- Irrigation water quality and floodplain impact assessment for a sports field bordering an estuary.

Cape Peninsula University of Technology

March 2006 - Present

Part Time Lecturer

Lecturing introductory earth science to B.Tech (Environmental Management) students.

Western Cape Department of Environmental Affairs and Development Planning
November 2003 – June 2007

Principal Environmental Officer, Waste Management Policy and Programmes

Projects

2Wise2Waste



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- Created and managed this project that established recycling and energy efficient behaviours throughout the Department; installed a roof garden on the Departmental office building in central Cape Town; retrofitted lighting and developed a draft green procurement policy.
- This project was more about education and marketing the idea to people than about simple hard interventions. A 2Wise2Waste brand was developed and is evolving as the project progresses. This project is fully supported by the MEC, Tasneem Essop, and gets mentioned annually in her budget speeches to Provincial Cabinet.
- Presented a paper at the biennial Wastecon – see publications list below.

Hospitality Cleaner Production

- A project with 9 hotels/lodges in the Western Cape that audited, educated and implemented energy, water and waste saving measures. This project was about selling the idea of initial capital outlay to gain continued savings – use of the payback period concept was critical to its success.
- A green rating system was proposed as a way of furthering these goals – in this case, the concepts of sustainable development and responsible tourism were introduced to the participants, as well as the value of marketing green accreditation.

Western Cape Cleanup Operation

- Supervised rehabilitation work in Kannaland and Oudtshoorn Municipalities.
- Involved with designing a rehabilitation project on the Khayelitsha Wetlands on the Kuils River – met with the KDF (Khayelitsha Development Forum) and SANBI to establish an indigenous tree nursery; liased with CapeNature, Working for Wetlands; attend Western Cape Wetlands Forum meetings; partnering with the City of Cape Town to implement the project.

Western Cape Health Care Waste Management Bill and Regulations

- Conducted research around health care waste handling and best practice.
- Assisted with legal drafting.
- Organised workshops around the Province for all stakeholders (municipal officers, state and private nurses and health administrators, health care waste handlers, etc.).

Other duties

Complaints

- Investigated and reported on illegal dumping, burning, etc.
- Ministerial complaints/requests – paper recycling crisis; `Butts Out` cigarette litter proposal; Provincial Government `Peak Oil` position.

Comments

- EIAs – Milnerton AECI site rehabilitation, Pebble Bed Modular Reactor Demonstration Power Plant at Koeberg, Breede River Winelands Municipality Regional Landfill, Struisbaai Drop-off, Piketberg Transfer Station, Faure Landfill Closure EMP, etc.



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- LEGISLATION – NEMA EIA regulations, NEMA Waste Bill, Provincial Energy Strategy.

Representing Government

- AGMs – PETco, Fairest Cape Association, Oasis Association.
- Launches – Isotherm, SA Glass Recycling Agreement.
- Other meetings – WESSA 80th anniversary, Waste Management Recycling Interest Group (IWMSA), ESKOM compact fluorescent disposal workshop, etc.

Parsons and Associates Specialist Groundwater Consultants

October 2002 – December 2002

Contract Hydrogeologist

- Groundwater pollution investigation around the Everite Factory, Brackenfell, entailing drilling of monitoring boreholes within the urban area.
- Groundwater pollution investigation around the Brackenfell Landfill, including sampling for tritium (^3H).
- Groundwater pollution investigation around the Zandvleit Sewerage Treatment Works.

Water & Rivers Commission, Government of Western Australia

March 1999 – February 2002

Hydrogeologist

Projects

Groundwater quality investigation of agricultural pollution on the Scott coastal plain. This sandy coastal plain is underlain by a deep sedimentary basin with large, fresh water aquifers. Centre-pivot irrigation and fertilization results in significant nutrient pollution that also affects the surface water bodies, including a relatively pristine estuary where toxic cyanobacteria algal blooms occurred. Drilling, logging, pumping tests, sampling, analysis and interpretation of the nutrient data were all performed, summarized in several reports and presented to the agricultural community concerned.

Construction of monitoring boreholes in public water supply aquifers north east of Perth.

These aquifers form part of the supply for Perth's drinking water that is 50% sourced from groundwater. Boreholes up to 500m deep were constructed into several different aquifers to enable better monitoring of groundwater levels. A borehole construction report was completed and a hydrogeological review of the area was updated with the new information.

Investigation into the pisolitic palaeochannel iron ore deposits and surrounding geological formations of the western Pilbara. Large pit voids after mining threaten to



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salinize the aquifer and affect downstream water users, including agriculture and Aboriginal heritage sites. Mine dewatering also alters the hydrological regime.

Several salinity investigations in the Western Australia Wheatbelt. Salinity is the single biggest environmental crisis faced in Australia today. Wholesale clearing of woodland to make way for extensive agriculture has resulted in changed hydrological regimes allowing saline groundwater to desertify land. Several drilling investigations were conducted in different catchments in the Wheatbelt as part of the government's response to salinity. Networking was done with agricultural communities and other government agencies to increase understanding and promote positive responses to salinity.

Groundwater potential evaluation around Albany. Interrogation of the State groundwater database and display of information using GIS to highlight areas with potential for drinking water supply for the town of Albany. A report and presentation were completed.

Other duties

- Answering public groundwater enquiries.
- Providing quality control and comment on Aquabase, the WA State groundwater database.

**Sons of Gwalia Ltd.
1998**

June 1997 – April

Exploration Geologist

Duties

The following activities were undertaken in the search for gold on the Archaean amphibolite facies Southern Cross Greenstone Belt in Western Australia:

- Supervise drilling: RAB, aircore, reverse circulation and diamond.
- Hand augering for soil samples for geochemical analysis.
- Log geology encountered in drillholes and input into database.
- Sample pit walls, send for analysis and interpret data.
- Field mapping.
- Reporting.
- Prospect assessment, involving compilation and analysis of all available information.

Education



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Further Technical Training

1998 – Present

- Interpretation and Structural Analysis of Aeromagnetic Data – Southern Cross, Western Australia
- Groundwater Course – Centre for Groundwater Studies, Perth
- ArcView GIS Courses – Perth and Cape Town
- Environmental Law – Potchefstroom University
- Environmental Risk Assessment – Rhodes University
- Environmental Economics – Rhodes University
- Environmental Management Inspector training – DEAT, TRAFFIC, University of Pretoria
- Policy Writing – University of Stellenbosch

University of Cape Town

1991 – 1997

- **BSc in Geology**, including Climatology, Oceanography, Environmental and Geographical Science and Astronomy. Attained the Dean's Merit List and won 3 class medals.
- **BSc(Hons) in Geochemistry**. Honours project on hydrothermal fluids and metamorphism at the unconformity between the Malmesbury Group and Table Mountain Group. Field mapping, microscope work and XRF analyses of major, minor and trace element geochemistry.
- **MSc in Geology**. Stable Isotopes of the Thermal Springs of the Cape Fold Belt. This study made use of oxygen and hydrogen isotope data from spring water, rain water and various rocks, all collected during the study. Analysis was by mass spectrometer. The study revealed information on the source of recharge and possible circulation of deep groundwater in the Cape Fold Mountains. The information is now used by those prospecting for groundwater in the Cape Fold Mountains.

Schooling

1979 – 1990

- Matriculated at Westerford High School, Cape Town, with A aggregate.



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CURRICULUM VITAE

Hanré Crous

Name	Hanré Pieter Crous
Date of Birth	15 August 1973
Nationality	South African
Identity Number	730815 5136 088
Sex	Male
Marital Status	Married
Language	English, Afrikaans

Qualifications & Professional Membership

- Bachelor of Science – Biochemistry & Zoology: University of the Free State, 1996
- Bachelor of Science (Honours) in Zoology: University of the Free State, 1997
- Master of Science (cum laude) in Zoology: University of the Free State, 1999
- Associate Environmental Auditor (ISO 14001): UK Institute of Environmental Management and Assessment – IEMA (Registration in process)

Key Experience

Seven years experience in Integrated Environmental Management (Strategic planning, EIA's, EMP's, monitoring, auditing, pollution abatement, rehabilitation etc.), including:

- **Integrated environmental management for the establishment, expansion, upgrade, rehabilitation and optimisation of light and heavy industrial processes** including the metallurgical, paper, mining and power generation industries
- **Integrated environmental management studies for the establishment, operation, auditing, closure and rehabilitation** of general waste landfills and transfer stations, industrial/hazardous waste landfills, incinerators, and hazardous effluent dams
- **Mining permit and licence applications** in terms of the Mineral and Petroleum Resources Development Act, 2002
- **Environmental impact assessments, environmental management plans and public participation programmes** for small, medium and large linear and site specific infrastructure and land developments
- **Environmental management plans (EMP)** for the construction, operational and decommissioning/closure phases of infrastructure and land developments, waste management facilities and heavy industrial processes
- **Environmental advisory services and strategic environmental management** including policy and procedures development, legal enforcement and compliance management, strategic planning, enviro-legal procedures and peer reviews
- **Specialist training** including training material development and training in environmental compliance enforcement for Department of Environmental Affairs & Tourism Environmental Management Inspectors (Green Scorpions).
- **Environmental auditing** including due-diligence, ISO 14001, legal compliance and waste audits



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- **Project management** of numerous environmental and strategic projects
- **Business management** including human resource and financial management, strategic business planning, mentoring, human resource management, quality management, marketing, drafting proposals, project review and administration

Employment History & Project Experience

Environmental Science Associates

February 2007 - Current

Project Management & Development Manager

Key Projects:

- Assmang Ferrochrome, Machadadorp: EIA for capacity to alternate between ferrochrome and ferromanganese production
- Section 24G Application and Rehabilitation Plan for property development in Meyerton
- DEAT Project Ferro: Specialist technical advisor to EMI team for compliance inspection of Mittal Steel Vereeniging
- SABS ISO14001 Legal Training: Practical application of NEMA Air Quality Act and NEMA EIA Regulations
- DEAT Policy development on High Temperature Thermal Destruction of Waste, and Guideline Development, EIA Review and Capacity Building on use of Alternative Fuels and raw materials in Cement Kilns
- IMPLEX Legal Training Seminar: Proposed amendments to NEMA EIA Regulations and Minerals & Petroleum Resources Development Act and Regulations
- DEAT Environmental Management Inspector (EMI; 'Green Scorpions') Training Manual and Programme (Inspections & Investigations)
- Transalloys due diligence audit update
- Extrupet PET and HDPE recycling facility: Environmental legal compliance audit
- Van Eeden Holding Trust Borrow Pit: Development of EMP for Permit Application to DME
- Hazardous Chemicals Risk Assessment training (B.Sc. Chemistry Honours students & lecturers, WITS)
- Rietfontein Golf Academy Illegal Development – S31A, Rehabilitation & S24G Application
- Kanhym Pig Manure Anaerobic Digester & Biogas Recovery System (CDM Project) – Environmental Impact Assessment and EMP
- Turfontein Racecourse Night-time Illumination Basic Assessment – ROD & Appeal procedure

ARCUS GIBB (Pty) Ltd

July 2005 – January 2007

Senior Environmental Scientist, Associate and Head: Rivonia Environmental Division.
Duties include environmental consulting services and business management.

Key Projects:

Environmental Impact Assessments:

- EIA and EMP for the proposed construction of a conventional nuclear power station and associated infrastructure in the Western Cape



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- EIA and Public Consultation Process for the 260 km 765kV transmission power line from the Hydra to Perseus substations (Northern Cape and Free State)
- Extrupet PET and HDPE waste recycling facility in Germiston, Gauteng
- EIAs for four housing developments in Gauteng

Strategic Environmental Assessments:

- Strategic Environmental Assessment of the one million ha Heritage Park. This ecologically sensitive, socio-economically complex Park will encompass Pilansberg and Madikwe Nature Reserve and cross the border between South Africa and Botswana
- Strategic Environmental Assessment of the Vaalkop Dam Provincial Nature Reserve. This proposed nature reserve will encompass the Vaalkop Dam and surrounding area and link up with the Pilansberg Nature Reserve

Environmental Audits:

- Pre-acquisition due-diligence audits of four distribution facilities for an international soft-drink company
- Waste disposal site audits of the Linbro and Marie-Louise waste sites, Johannesburg

Integrated Environmental Management and Permitting:

- R 32 million upgrade to Kelvin Power Station water-use and effluent management system in order to comply with relevant environmental and other regulations and legislation
- DEAT Compliance Monitoring Strategy
- Department of Mineral and Energy Affairs Applications for the R10 billion Eskom Braamhoek Pumped Storage Scheme in the Drakensberg

Strategic Environmental Focus (Pty) Ltd**September 2004 – June 2005**

Project Manager: EIA Unit and Unit, Manager: Mining and Industrial Unit

Key Projects:*Land Development Environmental Impact Assessments (EIA):*

- EIA and public participation process for the Nietgedacht filling station (Johannesburg, Gauteng), located in a ecologically sensitive area
- EIA and public participation process for the change in land-use of the Heidelberg showground (Gauteng) for the establishment of a light industrial area
- Exemption, stormwater management plan, EMP and public participation process for the Midridge Park X13 (Midrand, Gauteng) housing development
- EIA for the Alberton Dam (Gauteng) dredging and upgrade, and disposal of waste material
- Five EIAs and public participation processes for the Pomona X75, Pomona X77, Bonaero Park X13 and Hughes X59 (Kempton Park, Gauteng) housing development
- Two EIAs and public participation processes for the Delmas housing and shopping mall developments (Delmas, Mpumalanga)
- EIA for the Rustenburg shopping mall development (North West Province)
- EIA, EMP and public participation process for the BBQ Downs (Midrand, Gauteng) housing development



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- EIA, EMP and public participation process for the extension of a link road (Midrand, Gauteng)
- EMP for the Van Riebeeck Park housing development (Kempton Park, Gauteng)
- EIA for the Raslouw housing development (Centurion, Gauteng)
- EIA, public participation and appeal process for the Hans Strydom Road filling station (Tshwane, Gauteng)
- EIA, public participation and appeal process for the Rubenstein filling station (Tshwane, Gauteng)
- EIA and public participation process for the upgrade of the Union filling station (Northam, Limpopo)
- EIA and public participation process for the Belfast highway filling station on the N4 (Belfast, Mpumalanga)
- EIA and public participation process for the Waltloo filling station (Tshwane, Gauteng)

Industrial/Waste Environmental Impact Assessments (EIA):

- EIA (including air quality, health risk and process engineering review specialist studies) and public participation process for the Mittal Steel (ISCOR) Sinterplant upgrade project (Vanderbijlpark, Gauteng)
- EIA for the Mittal Steel (ISCOR) new hazardous waste (metal slag) disposal site (Vanderbijlpark, Gauteng)
- EIA (including air quality and health risk specialist studies) and public participation process for the Mittal Steel (ISCOR) new Galvanising Line (Vanderbijlpark, Gauteng)
- EIA (*incomplete*) for the Highveld Steel power generation plant (Witbank, Mpumalanga)
- EIA for the William Tell particle board manufacturing plant (Johannesburg, Gauteng)
- EIA (including air quality, health risk and process engineering review specialist studies) and public participation process for the CFT Brick manufacturing plant (Vanderbijlpark, Gauteng) using slag waste from Mittal Steel (ISCOR)
- CEMP and OEMP for the Nigel waste transfer station (Nigel, Gauteng)
- Monitoring plan and public participation for the closure and rehabilitation of the Alberton North waste landfill (Gauteng)
- EIA (including air quality, health risk, traffic, geotechnical etc. specialist studies) and public participation process for the new Zesfontein regional waste disposal site (Benoni, Gauteng)
- Environmental exemption studies and public participation process for the Afrox PMP facility expansion and upgrade (Germiston, Gauteng)
- Environmental exemption studies (including risk assessments) and public participation processes for twelve Afrox LPG storage facilities (Johannesburg & Tshwane, Gauteng)
- Environmental exemption studies (including risk assessments) and public participation processes for two Afrox bulk (industrial) LPG storage facilities (Johannesburg, Gauteng)

Mining Applications:

- Ten prospecting permit applications and public participation processes for Impala Platinum (Mpumalanga, Limpopo & North West provinces)
- Mining permit applications for borrow pits associated with the TCTA water pipeline between the Vaal Dam and Secunda (Gauteng & Mpumalanga)
- Mining right applications (EIA) for two new Lonmin Platinum mines (Rustenburg area, North West)



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- Mining right application (EIA) for the new Boynton Platinum mine (Pilanesburg area, North West)
- Mining right application (EIA) for the new Kumba Resources iron ore mine (Kathu, Northern Cape)
- Mining permit applications for borrow pits associated with the N11 upgrade (Witbank, Mpumalanga)

Environmental Advisory Services:

- EIA and authorisation peer review and enviro-legal support for the Heilbron filling station (Free State) appeal and High Court review procedures
- EIA peer review and enviro-legal support for the illegal Vaalwater bonemeal facility (Limpopo)
- Peer review and appeal against denied authorisation for the Capital Park filling station, including specialist air quality and health risk assessments (Tshwane, Gauteng)
- Pre-acquisition due diligence assessment for international cigarette manufacturing company (Germiston, Johannesburg)

Gauteng Department of Agriculture, Conservation & Environment

November 1999 – August 2004

Assistant Director: Integrated Waste Management & Pollution Abatement.

Duties included:

- Implementation of the EIA Regulations, Environment Conservation Act and NEMA
- Review of EIA applications for authorisation, Environmental Management Plans and Mining EMPR's
- Focus on IEM and strategic planning in large industries, with specific reference to air quality and solid waste management
- Environmental performance auditing of waste landfills and monitoring of compliance with conditions of authorisations, and provisions of legislation
- Identifying needs for, and development of, legislation, policies, strategies and guidelines
- Responsibility for all HR issues as the first line manager of Environment Officers.
- Various managerial responsibilities (budget, business planning, performance reviews, interviews)

Project review, regulation and development included:

Integrated Waste Management:

- Establishment, operation, auditing, closure and rehabilitation of general waste landfills and transfer stations, industrial/hazardous waste landfills, and hazardous effluent dams
- General and hazardous waste, industrial effluent and sewage characterisation, reduction, recycling, treatment and re-use
- Hazardous and medical waste treatment and incineration

Industrial Scheduled Processes:

- Establishment, expansion and upgrade of various large industry processes, mostly metallurgical



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- Air quality impact assessments, process & technology review, cleaner technology, dispersion modelling & health risk assessments, and HAZOP assessments
- Air pollution control equipment installation, upgrade and technology review

Energy Generation and Supply:

- Coal fired power station due diligence assessment, environmental audit, air quality impact assessment and waste management
- Power generation from industrial process emissions
- Large scale electricity transmission lines
- Township electrification and distribution networks
- Energy efficiency and alternative energy use

Hazardous Chemicals Management:

- Manufacture, storage, handling and distribution of hazardous chemicals including gas, as well as petroleum products, including filling stations
- Product safety review, product substitution and major hazard installation risk assessments

Mining:

- EMPR's, rehabilitation, environmental and waste management for various types of mining, mostly sand, clay, rock, diamond and gold mining

Land-use Planning:

- Change in land-use (rezoning), and related urban and rural development projects

Other Activities:

- Water and sewage treatment, infrastructure, storage (reservoirs) and distribution (pipelines)
- Abattoirs, rendering plants, cemeteries and crematoria

Strategic Environmental Management:

- Large industry strategic environmental management plan development, prioritisation and implementation
- Regional strategic environmental assessment & local authority IDP
- Cleaner technology review and implementation
- Integrated waste management strategy and planning
- State of environment reporting, indicators and environmental information databases
- National law reform – NEMA EIA Regulations, Waste Management Bill, Air Quality Bill, and Tyre, Beverage Container and Plastic Bag Regulations
- Independent EIA review
- General legislation – interpretation, development, appeals and court cases

Industrial projects [Metalloys Meyerton (Samancor), Mittal Steel (ISCOR), MMC Krugersdorp, SAPPI, EnviroServ, ZINCOR, Kelvin Power Station etc.] included:

- Integrated Waste Management: Establishment, operation, auditing, closure and rehabilitation of general waste landfills and transfer stations, industrial/hazardous waste landfills, and hazardous effluent dams. General and hazardous waste, industrial effluent and sewage characterisation, reduction, recycling, treatment and re-use. Hazardous and medical waste treatment and incineration.



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- Industrial Scheduled Processes: Establishment, expansion and upgrade of various large industry processes, mostly metallurgical. Air quality impact assessments, process & technology review, cleaner technology, dispersion modelling & health risk assessments, and HAZOP assessments. Air pollution control equipment installation, upgrade and technology review.
- Energy Generation and Supply: Coal fired power station due diligence assessment, environmental audit, air quality impact assessment and waste management.
- Hazardous Chemicals Management: Manufacture, storage, handling and distribution of hazardous chemicals including gas, as well as petroleum products, including filling stations. Product safety review, product substitution and major hazard installation risk assessments.
- Mining: EMPR's, rehabilitation, environmental and waste management for various types of mining, mostly sand, clay, rock, diamond and gold mining.
- Strategic Environmental Management: Large industry strategic environmental management plan development, prioritisation and implementation, regional SEA, cleaner technology review and implementation, Integrated waste management strategy and planning, state of environment reporting, indicators and environmental information databases, and legislation interpretation, development, appeals and court cases.

Courses

- Foundation Environmental Auditor Course (ISO 14001): Aspects International UK / Crystal Clear; IEMA UK (Institute of Environmental Management and Assessment) approved course
- Supervision Training: Management and training of staff, performance assessments, disciplinary actions
- Covey Training - The 7 Habits of Highly Effective People: Time Management, Personal Development, Management Skills and Prioritisation
- Conflict Resolution: Conflict Management in terms of the National Environmental Management Act; Department of Environmental Affairs & Tourism
- Public Finance Management Act: Internal
- Logical Framework Approach (LFA) to Project Preparation: Project Development, Problem Statements, Objective Setting, Measures to Achieve Objectives, Funding, Project Management etc; DANCED-Danish Co-operation for Environment and Development
- Principles of EIA Review: Methodology of Environmental Impact Assessment Review; Department of Environmental Affairs & Tourism, and the U.S. Environmental Protection Agency
- Personnel Performance Management System (PPMS) Training: Department of Agriculture, Conservation, Environment & Land Affairs
- Entrepreneurship and Business Management: Unit for Small Business Development; University of the Orange Free State
- Environmental Educators Training: Wildlife and Environment Society of South Africa



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Name	Abdul H Ebrahim
Date of Birth	7 December 1977
Nationality	Zimbabwean
Identity Number (RSA)	7712076019184
Sex	Male
Marital Status	Unmarried
Language	English (French & Portuguese)

Qualifications and Memberships

- BSc(Hons) (Mech Eng) University of Zimbabwe 2000
- BEng(Hons) (Chem Eng - Environmental) University of Pretoria in progress
- Member of the Engineering Council of South Africa – registration number 20075012

Key Experience

Four years of engineering and process control with British American Tobacco in Zimbabwe.

Three years of environmental management with Environmental Science Associates.

- **Implementation of statistical methods** for evaluating process experiments, selecting measuring instrumentation and doing cause-effect analyses in a tobacco processing plant
- **Machine design and installation** including conveyor belts that resulted in reduced downtime, baghouse and dust extraction plant, various tobacco processing machinery
- **Automation** of mass flow control, primary and secondary leaf conditioning, re-drying and steam control to improve product moisture consistency
- **Development and implementation of environmental management systems** for several large industrial facilities
- **Environmental impact assessment** for various proposals or developments, including heavy industry and recreational facilities
- **Soil and groundwater contamination assessment** for different industrial clients
- **Environmental due diligence** assessments including environmental liabilities for mining, mineral processing and industrial sites



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- **Environmental legal compliance** audits of various mining, minerals processing, and industrial operations,
- **Air quality assessment and emissions plans** for various industrial installations
- **Cleaner production** and process optimizations at several processing plants
- **ISO 14001 audits** of industrial and mining operations
- **Training** including development of training materials for government and private institutions

Employment History & Project Experience

Environmental Science Associates
2007

2004 –

Projects Manager

Environmental management system development & implementation:

- Lafarge Gypsum Aspects Identification, Rating, Assessment and Development of EMPs
- Environmental Aspects Identification, rating and formulation of EMPs for Samancor Metalloys Meyerton
- Environmental Aspects Identification, rating and formulation of EMPs for DMS Powders.
- Holcim Slagment development & implementation of EMS components including waste and air quality management
- Holcim Roodepoort development & implementation of EMS components including waste and air quality management

Environmental impact assessment:

- Samancor chrome chemicals plant development
- Kanhym Biogas project
- Turfontein Race Course night racing
- Alumicor secondary aluminium recovery rotary salt furnaces
- Hays Lemmerz Aluminium smelters, furnace and alloy die casting
- Plettenburg Polo Estates
- PG Bison Decorative Panels
- British Aerospace Land Based OMC Systems

Soil and groundwater contamination assessment:

- Lafarge Gypsum
- Kanhym Estates



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- SABAT (Pty) Ltd Johannesburg – investigation of heavy metal contamination of soils and groundwater
- Chemiphos SA (Pty) Ltd – investigation of phosphate and heavy metal contamination of soils and groundwater
- Castrol Lubricants Zimbabwe

Environmental due diligence audits, including assessment of environmental liability:

- Determination and quantification of financial provision for the environmental rehabilitation and closure requirements of smelting operations for TransAlloys
- Determination and quantification of financial provision for the environmental rehabilitation and closure requirements of mining operations for Samancor Chrome:
 - Western Chrome Mines
 - Eastern Chrome Mines
- Determination and quantification of financial provision for the environmental rehabilitation and closure requirements of smelting operations for Samancor Chrome:
 - Middelburg Ferrochrome
 - Ferrometals
 - Tubatse Ferrochrome

Environmental legal compliance assessment:

- NATCOS Petrochem
- SASOL Synfuels
- Angloplatinum Base Metals Recovery
- Samancor Hotazel Manganese Mines
- PG Bison (Pty) Ltd MDF manufacturing
- Samancor Manganese Division Samancor Metalloys Meyerton
- Holcim SA (Pty) Ltd Cement Plants:
 - Dudfield
 - Ulco
 - Roodepoort
- Natal Portland Cement Plants:
 - Newcastle
- South African Airways (Pty) Ltd Technical Division
- TWK forestry strategic environmental legal compliance assessment
- Inergy Automotive Systems(Pty) Ltd

Air quality assessment, including emissions management:

- Hayes Lemmerz SA Aluminium Wheel Manufacturing
- Samancor Chrome Chemicals
- Aluminicor secondary aluminium recovery rotary salt furnaces – assisted using Screen 3 Model



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- Holcim Roodepoort Cement Mills and Materials Management – assisted using Screen 3 Model

Cleaner production audits and project implementation:

- Premier Foods Pretoria Wheat Mill
- Kanhym Estates Biogas Generation from piggery effluent
- Britttish American Tobacco:
 - Tobacco Processors Zimbabwe
 - Souza Cruz Brasil

ISO14001 auditing:

- Debswana Orapa and Letlhakane Mines
- Ingwe Colliery
- Arnot Colliery
- FOSECO South Africa (Pty) Ltd
- Lafarge Gypsum

Environmental Management Systems

- Samancor Metalloys Ferro Silicon Manganese and FerroSilicon production
- DMS FeSi dense media prodcuton
- Lafarge Gypsum

Provision of training, including development of training material:

- DEAT Environmental Management Inspectors – Planning and Conducting Compliance Inspections
- Implex – National Environmental Management Air Quality Act of 2004 and implications for industrial and mining operations
- British American Tobacco – Statistical Process Control and plant automation for management, technicians and operators

British American Tobacco (plc)

Graduate Engineering Trainee 2000 - 2002

Process Control Manager 2002 - 2004

- Introduction of statistical process control and use of cause effect fishbone analysis to identify root causes of assignable process variation in tobacco processing plant



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- Introduction and lead of quality circles as a means of identifying opportunities for process improvement as well as a means of operator training in SPC ideology
- Introduction of the use of statistical methods to evaluate the results process improvement experimentation
- Introduction of the use of statistical methods for selection of key measuring instrumentation based on repeatability and accuracy under varying process conditions
- Formulation and implementation of best practices for belt conveyor design, fabrication and assembly based on statistical root cause analysis of downtime, resulting in 54% reduction in conveyor related downtime
- Bundle busting machine design and fabrication resulting in increased production line federate from 3000kg/h to 4000kg/h for a subsidiary line.
- Dust extraction and baghouse plant fabrication and erection (designed externally)
- Buts Line Rate control Design, Fabrication and Automation for improved product mass flow rate control and consistency
- Automation of primary and secondary tobacco leaf conditioning to improve control of conditioning and reduce deviation of product moisture content
- Redryer Automation resulting in improved product quality consistency, reduced deviation in final product moistures.
- Automated supply steam control for tobacco processing plant to improve steam supply consistency resulting in an average 8% improvement in final moisture variation.
- Redesign of threshing baskets to optimise yield and improve PSD variation, resulting in significant measurable improvements in all Particle Size Distribution components as well as improved yield

- Implementation of integrated Quality and Environmental management systems and successful certification to ISO 14001:1996 and ISO9001:2000 for Tobacco Processors Zimbabwe.
- Implementation of integrated Quality and Environmental management systems and successful certification to ISO 14001:1996 and ISO9001:2000 for Export Leaf Tobacco (Pty) Ltd.
- Cleaner production assessment for Souza Cruz & Export Leaf Tobacco Company, Santa Cruz Do Sul, Brazil.
- Cleaner production assessments for Tobacco Processors Zimbabwe



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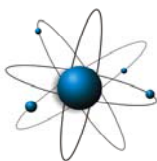
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Education**Further Technical Training**

Course	Year	Institute
Government Certificate of Competence Occupational Health and Safety Environmental Management Accounting	2006	University of Potchefstroom South Africa Tshwane University of Technology South Africa
Air Resources Engineering	2005	Witwatersrand University South Africa
SCADA WonderWare InTouch	2003	Futuristix Johannesburg, South Africa
Programmable Logic Control Networks	2002 & 2004	Schneider South Africa South Africa
SCADA InSQL Sever	2002 & 2004	Futuristix Johannesburg, South Africa
Instrumentation and Automation	2002	TM Training Initiative Welkom, South Africa
Programmable Logic control	2002	TM Training Initiative Welkom, South Africa
WonderWare QI Analyst	2002	Futuristix South Africa
WonderWare Industrial SQL Server	2002	Futuristix South Africa
Certificate in Electrical & Electronics Engineering	2002	City & Guilds UK – by correspondence
ISO 14001: 1996 implementation	2001	Sharp Point Zimbabwe
ISO 9001: 2000 implementation	2001	Sharp Point, Zimbabwe
Certificate in Quality Management	2001	City & Guilds UK – by correspondence
BSc (Hons) Engineering	2000	University of Zimbabwe Zimbabwe

University of Zimbabwe**1996 – 2000**

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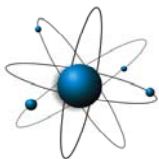
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- **BSc(Hons) in Mechanical Engineering.** Achieved 2nd place in class of 36 graduates.



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Name	Jaco VAN TONDER
Name of Firm	Knight Hall Hendry
Year of birth	1980
Qualifications	BSc(Hons) Engineering Geology. Pr.Sci.Nat
Experience	4 years
Language	Afrikaans/English read – excellent; speak – excellent; write – excellent
Countries of experience	South Africa, Zimbabwe, Malawi, Angola, Mali, Burkina Faso Mexico, Lesotho

Summary of Key Experience

Engineering geologist, mainly involved with the planning and execution of geotechnical investigations. These include site investigations, interpretation of results, and reporting to clients. Primary fields of expertise include geotechnical logging of rotary core boreholes and test pits together with interpretation of geotechnical conditions and geological mapping.

Experience:

Mine Plants and related structures

- Kayelekera Uranium Mine, Malawi: Geotechnical investigations for two tailings dams, process plant site, access roads, construction materials, and various other surface infrastructure. The investigation included fieldwork (boreholes, test pits, soil sampling) with analysis and reporting as a team.
- Phoenix and Tavistock Vent Shaft, Mpumalanga: Geotechnical investigation for surface infrastructure.
- Blue Ridge Mine, Groblersdal: Geotechnical investigation for plant and access road.
- Ezulwini Gold and Uranium Mine, Westonaria: Geotechnical investigation for plant and surface infrastructure.
- Northern Coal, Mpumalanga: Geotechnical investigation for discard dump.
- Butterfly Open Cast Mine, Mpumalanga: Geotechnical investigation for surface infrastructure.
- Modder East Mine, Brakpan: Geotechnical investigation for plant.
- Samancor, Middelburg: Geotechnical investigation for plant and waste disposal facility.
- Thabazimbi Iron Ore Mine: Open pit stabilization.
- Impala Platinum Mine Shafts No. 16 and 20: Geotechnical investigation for shaft and surface infrastructure.
- TGME Beta Mine, Pilgrim's Rest: Geotechnical investigation for decline shaft brow.
- Irenedale Mine, Secunda: Geotechnical investigation for plant, road and pipeline.

- PPC Cement, Dwaalboom: Geotechnical investigation for new plant and silos.
- Loulo Gold Mine, Mali: Geotechnical investigation for plant infrastructure.

Dams and Tailings dams

- Youga Gold Project, Burkina Faso: Geotechnical investigation for tailings dam.
- Transalloys, Witbank: Geotechnical investigation for tailings dam.
- Ash Resources, Vereeniging: Geotechnical investigation for stormwater retention dam.
- Modder East Mine, Brakpan: Geotechnical investigation for tailings dam.
- Letseng Diamond Mine, Lesotho: Geotechnical investigation for tailings dam stabilization.

Roads and Linear structures

- Gautrain Rapid Rail Link, Gauteng: Geological mapping of exposed faces in existing railway cuttings as well as data collection from rotary cored boreholes for DP1 and DP2 phases of geotechnical investigation.
- Nasrec Development, Johannesburg: Geotechnical investigation for bridges around FNB Soccer Stadium.
- Leeuwkop relief outfall sewer, Johannesburg: Geotechnical investigation for tunnel.
- N3 Van Reenen's Pass, Free State: Feasibility study for new alternative route.

Geological and Structural mapping

- Braamhoek Pump Storage Scheme, Free State: Geotechnical investigations for construction materials, surface and subsurface infrastructure and geological mapping.
- Palmarejo Project, Mexico: Structural mapping on tailings dam area to determine borehole drilling program for BFS.
- Wesizwe Platinum Mine, Pilanesberg: Exploration and structural geology.
- Benson Tantalite, Zimbabwe: Exploration and geotechnical investigation for open cast mine.

Surface Infrastructure

- Numerous foundation investigations for offices, residential developments, railways and roads.
- Ekandustria Landfill and Waste Water Works: Geotechnical investigation for surface infrastructure and geohydrological investigation on groundwater pollution.
- GDE Science Centre, Newtown Johannesburg: Geotechnical investigation for foundations.

Summary

Dawid Mouton is a Senior Engineering Geologist with more than 20 years experience. He has carried out a large number of engineering geological investigations of dam sites and associated structures at reconnaissance, feasibility and design levels. His experience also entails engineering geological investigations of numerous dam sites and other water-related structures, including construction materials investigations. Dawid Mouton has also performed site investigations for a large variety of structures and different types of developments throughout Africa. These include: site investigations for buildings; bridges; pipelines; reservoirs; industrial and mining developments. He has experience in engineering geological and geotechnical investigations for tunnels and stability of large rock cuttings. He has also performed numerous groundwater and soils investigations for environmental scoping studies, including the licensing investigations for solid waste disposal facilities.

Education

1981, BSc (Hons) Eng. Geology, University of Pretoria RSA

Registration/Certifications/Training

SciNat # 400274/87

Professional Experience

Dams

Thukela Water Project Feasibility Study, Kwa Zulu-Natal, RSA

Geological Task Leader involving geological and geotechnical investigations on a feasibility level of a 160 m high dam on the Thukela River (Jana), a 85m high dam on the Bushmans River (Mielietuin) and 180 km long aqueduct route evaluation, including 5 booster pumping stations.

Mvumase Dam, Kwa-Zulu Natal, RSA

Design of a 140 m rockfill dam on the Tugela River. Responsible for the foundation investigations for the river diversion structure, the rockfill dam and the investigations of the cutoff requirements.

Vaal River from Grootdraai Dam, Standerton, Mpumalanga, to the Vaal Dam near Deneysville, RSA

Design investigations of 7 x 10m to 15m high weirs, as part of an emergency water supply scheme.

Tonga Dam, Mpumalanga, RSA

Feasibility study of a 35m composite structure of Tonga Dam on the Komati River.

Nsuze Dam, Kwa-Zulu Natal, RSA

Feasibility study of a 50m composite structure on the upper Nsuze River.

Unwa Dam, Limpopo Province, RSA

Design investigations of the Unwa dam (off-channel storage dam) on the Mutale River, including construction supervision of foundation preparations and grouting.

Driekoppies Dam, Mpumalanga, RSA

Specification for grouting, drilling and water pressure testing of the 50 m composite structure of the Driekoppies dam on the Lomati River. Involved with construction investigations as engineering geologist on the design team. Performed specialist investigations on the upper left flank to study a seepage problem which included the installation of additional relief wells.

Tugela River Catchment, Kwa-Zulu Natal, RSA

Pre-feasibility investigations of over 40 dam sites (various structures ranging from 30m to 180m) in the upper Tugela River Catchment.

Mogalakwena River, Limpopo Province, RSA

Reconnaissance level investigations of several dam sites on the Mogalakwena and Palala Rivers as part of the Mogalakwena River feasibility study.

Groenvlei dam, Potgietersrus, RSA

Feasibility investigations a 30 m high potential rockfill dam on the Sterk Spruit.

Haenertzburg Reservoirs (2 x 15,5 MI reservoirs), Limpopo province, RSA

Foundation investigations of numerous water-related structures, including reservoirs, pipelines and pumping stations.

Ebenezer Dam, Limpopo Province, RSA

Pumpstations, extensions to water treatment works, workshop and sheds.

Injaka Dam, Mpumalanga, RSA

Preliminary design investigations for a 40m composite dam on the Marite River, including materials investigations and dam basin stability assessment.

Oranje-Riet Canal, North-West Cape

Stability investigation of a deep, 1km long cutting and the identification and investigation (drilling and testing) of a rock quarry for concrete aggregate for constructing the canal.

Mining Infrastructure Development

Blue Ridge Platinum Mine, Limpopo Province, RSA

Geotechnical investigations for plant and inclined shaft stability.

Kalbasfontein Coal Mine Site, Mpumalanga, RSA

Site evaluation and geotechnical investigations for a new co-disposal dump and raw water dam site.

Loulo Gold Mine, Mali

Site investigations for dam and diversion canal to protect pit and design level geotechnical investigation for new tailings dam.

Atcom Coal Mine, Mpumalanga, RSA

Geotechnical investigation of the discard dump for co-disposal.

Arthur Taylor Colliery, Mpumalanga, RSA

Geotechnical investigations for the new Butterfly pit and associated attenuation dam and diversion canal and closure of discard dump.

Tabakoto Gold Mine, Mali

Site evaluation, investigation and design of raw water supply dam.

Youga Gold Mine, Burkina Faso

Bankable feasibility level geotechnical investigations for plant site and tailings dam.

Affiliations

Member of South African Institute of Engineering Geology
Member of International Association of Engineering Geologists
Participant in Geotechnical Division of South African Institution of Civil Engineers

Employment History

Knight Hall Hendry (Pty) Limited, South Africa, Senior Engineering Geologist, 1995 to present

Chunnett Fourie & Partners, Engineering Geologist, 1988 to 1993

Geological Survey of RSA, Engineering Geologist, 1982 to 1988

Publications and Presentations

W J Botha & DJ Mouton, "An Evaluation of the Time Domain Electromagnetic Method as a Tool for Investigating Potential Sinkhole Formation Areas in Dolomite", Presented to the Proc. Conf. on Geology for Engineering, Urban Planning and the Environment November 1997, Midrand, RSA.

CURRICULUM VITAE

PERSONAL INFORMATION

Name	Roelof Petrus Burger
Address	P.O.Box 75377, Lynnwood Ridge, 0040, South Africa
Telephone	+27 82 5639776
Email	roelof.burger@gmail.com
Nationality	South African
Date of birth	26.03.1976

WORK EXPERIENCE

- Dates (from–to) 01.11.2004 – present
- Name and address of employer Climate Research Group, University of the Witwatersrand, Johannesburg
- Position held Associate Researcher
- Main activities and responsibilities Project management, lecturing and training, student guidance, software development, atmospheric chemistry research, air dispersion modelling, cloud microphysical research
- Dates (from–to) 01.11.2004 – present
- Name and address of employer Roelof Burger, Pretoria
- Type of business or sector Consultant
- Main activities and responsibilities Project management, training, software development, air dispersion modelling, air quality assessment
- Dates (from–to) 01.06.2000 – present
- Name and address of employer University of Pretoria, Pretoria
- Position held Part-time lecturer
- Main activities and responsibilities Present courses in cloud microphysics, supervisor for honours students
- Dates (from–to) 15.12.2003 – 31.10.2004
- Name and address of employer South African Weather Service, Cape Town
- Position held Senior Meteorologist
- Main activities and responsibilities Project management, software development, atmospheric chemistry research, cloud microphysics research
- Dates (from–to) 15.12.2002 – 18.11.2003
- Name and address of employer Dept. of Water Resources Studies, Abu Dhabi, UAE
- Position held Atmospheric Scientific Consultant
- Main activities and responsibilities Project management, software development, atmospheric chemistry research, cloud microphysics research
- Dates (from–to) 16.12.1998 – 15.12.2001
- Name and address of employer South African Weather Service, Bethlehem
- Position held Meteorologist
- Main activities and responsibilities Software development, atmospheric chemistry research, cloud microphysics research

EDUCATION

- Dates (from–to) 1998
- Name of organisation and location University of Pretoria, Pretoria
- Title of qualification awarded BSc (Hons) Atmospheric Science
- Subjects Cloud microphysics, cloud dynamics, radar meteorology, dynamic meteorology, tropical meteorology, numerical modelling

- Dates (from–to) 1995 – 1997
- Name of organisation and location University of Pretoria, Pretoria
 - Title of qualification awarded BSc Atmospheric Science
 - Subjects Applied mathematics, meteorology, mathematics
- Dates 1990 - 1994
- Name of organisation and location Diamantveld Highschool, Kimberley
 - Title of qualification awarded High School Diploma

COMPUTER SKILLS

- Operating Systems
 - Scripting Linux installation, customization, administration and basic programming
Shell scripting (BASH, TCSH, ZSH and Gawk)
 - Programming Create and modify basic Fortran, C, C++, Java, Python and Perl programs
 - Statistics Basic usage of the R programming language
- Web Development
 - Create and modify HTML typesetting
 - Image creation and manipulation
- Labview
 - Create and modify basic Labview applications
 - GIS Basic usage of the Geographic Resources Analysis Support System GIS (GRASS)
 - TITAN Setup and administration of radar station using NCAR TITAN software
Using TITAN utilities to generate radar statistics
 - GMT Analyse and graphically display data using the Generic Mapping Tools suite.

FIELD CAMPAIGNS

- Dates 2007
- Project The Feasibility of Weather Modification in Saudi Arabia in cooperation with NCAR, Riyadh
- Responsibilities Project scientist, data acquisition, analysis and management, flight scientist
- Dates 2003-2006, 13 different field projects
- Project South African Air Pollution for Department of Environmental Affairs and Tourism
- Responsibilities Project scientist, experimental design, operations director, data acquisition, analysis and management, flight scientist
- Dates 2001-2006, 9 different field projects
- Project UAE Weather Modification Project, UAE2 and combined NCAR projects, UAE
- Responsibilities Project manager, project scientist, flight scientist, experimental design, direct daily operations, assist in data acquisition, analysis and management, radar operator
- Date 2005
- Project Andrapradesh Weather Modification Project, India
- Responsibilities TITAN installation, training on TITAN usage
- Date 1999-2001, 4 field projects
- Project Aerosol Rainfall and Recirculation Experiment - ARREX, South Africa
- Responsibilities Scientist, data acquisition, analysis and management
- Date 2000
- Project The Southern African Fire Research Initiative - SAFARI2000, Southern Africa
- Responsibilities Scientist, data acquisition, analysis and management, flight scientist
- Date 1999-2000
- Project The South African Rainfall Enhancement Project, South Africa
- Responsibilities Scientist, data acquisition, analysis and management, radar operator

COURSES AND WORKSHOPS

- Dates 2005
- Name of organisation and location National Instruments, SA
- Title of course Introduction to Labview
- Dates 2002
- Name of organisation and location US Environmental Protection Agency, Port Elizabeth, SA
- Title of course Overview of Atmospheric Dispersion Modelling
- Dates 1999
- Name of organisation and location National Centre for Atmospheric Research (US), Mexico City, Mexico
- Title of course Workshop on Weather Modification

AWARDS

- Dates (from-to) 2002
- Name of organisation and location South African Society of Atmospheric Science, Pretoria
- Award Best presentation by a young scientist
- Dates (from-to) 1999
- Name of organisation and location South African Society of Atmospheric Science, Richards Bay
- Award Best presentation by a young scientist

SCIENTIFIC PUBLICATIONS

- T. Elias, S.J. Piketh, R.P. Burger, and A.M. Silva.
Exploring the potential of combining column-integrated atmospheric polarization with airborne in situ size measurements for the retrieval of an aerosol model : A case study of a biomass burning plume during safari 2000.
Journal of Geophysical Research - Atmospheres, 108 (D13):44–1–44–16, 2003
- K.E. Ross, S.J. Piketh, R.T. Brientjes, R.P. Burger, R.J. Swap, and H.J. Annegarn.
Spatial and seasonal variations in the distribution of cloud condensation nuclei and the aerosol-cloud condensation nuclei relationship over southern africa. *journal of geophysical research - atmospheres*, 108 (d13).
Journal of Geophysical Research - Atmospheres, 108 (D13):17–1–17–18, 2003
- D.E. Terblanche, M.P. Mittermaier, S.J. Piketh, R.T. Brientjes, and R.P. Burger.
The aerosol recirculation and rainfall experiment (arrex): an initial study on aerosol-cloud interactions over south africa.
South African Journal of Science, Vol 96 No. 1, 2000

REFERENCES

- Dr. Stuart Piketh
Climate Research Group, Wits University - Director +2711 7176532
- Dr. Deon Terblanche
South African Weather Service - Divisional Manager, Research +2712 3676114
- Dr. Kristy Ross
Eskom, Resources and Strategy - Senior Environmental Advisor +2711 6295156

DR HENNIE MINNAAR

- Hennie Minnaar holds a BSc and a MSc (Physics) from the University of Potchefstroom and obtained a PhD (Physics) from the University of South Africa (UNISA)
- He was deputy leader to the Antarctic Expedition (SANAE 14) as physicist
- Started an industrial career in 1978 in the electro-optical industry as Manager Production and Process Development
- Since 1991 he was manager of the Risk Analysis Division of the NECSA where he gained 10 years of experience involved in more than 250 different risk analyses relating to nuclear and non-nuclear activities.
- Started an industrial career in 1978 in the electro-optical industry as Manager Production and Process Development
- Since 1991 he was manager of the Risk Analysis Division of the NECSA where he gained 10 years of experience involved in more than 250 different risk analyses relating to nuclear and non-nuclear activities.
- In 1997 he joined IRCA as Managing Director Technical Services, responsible for Risk Assessment, Environmental Impact Analysis and Crime Risk. The risk studies covered more or less every aspect of the mining, process and business industries. Several international risk assessments and risk assessment training courses were developed
- In March 2000 he formed Bureau of International Risk Management (Pty) Ltd BIRA CK 99/023738/07

Bureau of International Risk Management (Pty) Ltd BIRA received Institutional Accreditation 16-Mar-2004 Decision Number 764 enabling BIRA to undertake Major Hazardous Installation Risk Assessments.