

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

## Qualifications and Memberships

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

## Key Experience

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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
- **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

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**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 Slag 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:**

- Lanxess CISA chrome chemicals plant development
- Samancor chrome chemicals plant development
- Hernic Ferrochrome power generation from furnace off-gases
- 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

**Specialist Training Course Development & Presentation**

- 2007&8 Training of Authorities for EIA review in terms of NEMA Regulations

Responsible for development of NEMA EIA Review Course and Administrators EIA Review Manual, theoretical and practical training material, and training of Government Officials responsible for EIA Review - responsible for the whole manual other than Law applicable to EIA Review. As at May 2007 approximately 400 officials from DEAT and 9 Provinces have been trained. Project is to be extended to cover the training of officials from DME and additional officials from provinces.

- 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 IAIA Premium Project finalist in 2006.

**Soil and groundwater contamination assessment:**

- Lafarge Gypsum
- Kanhym Estates
- SABAT (Pty) Ltd Johannesburg – investigation of heavy metal contamination of soils and groundwater



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- 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 Highveld Steel & Vanadium operations:
  - Highveld Iron and Steel Works
  - Vanchem
  - Transalloys
  - Rand Carbide
  - Mapochs Mine
- 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:
  - Middelburg Ferrochrome
  - Ferrometals
  - Tubatse Ferrochrome
  - Western Chrome Mines
  - Eastern Chrome Mines

**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
- Consolidated Wire Industries
- 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



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- Aluminicor secondary aluminium recovery rotary salt furnaces – assisted using Screen 3 Model
- 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

**British American Tobacco (plc)**

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|                              |             |
|------------------------------|-------------|
| 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
- 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)



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- 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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## Education

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### Further Technical Training

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

### University of Pretoria

**2007**

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- **BEng(Hons) in Environmental Engineering, dept of Chemical Engineering**

### University of Zimbabwe

**1996 – 2000**

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



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# CURRICULUM VITAE

# Bradley Thorpe

Full Name: Bradley Kevin Thorpe  
Date of Birth: 27 March 1980  
Nationality: South African  
Identity Number: 8003275043087  
Sex: Male  
Marital Status: Single  
Language: English, Afrikaans

## Qualifications & Professional Membership

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- Bachelor of Science – Animal Sciences: University of Pretoria, 2002
- Bachelor of Science (Honours) in Wildlife Management: University of the Pretoria, 2003
- Member: Institute of Waste Management, South Africa (IWMSA)
- Member: International Association of Impact Assessors (IAIA), South Africa branch

## Key Experience

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Four (4) years experience in Integrated Environmental Management (Strategic planning, legislation, 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 / prospecting permit and licence applications**, in terms of the Mineral and Petroleum Resources Development Act (MPRDA) –as amended, 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**, including policy and procedures development, legal enforcement and compliance management, strategic planning, enviro-legal procedures and peer reviews
- **Specialist training**, including training of Provincial Environmental Authorities / EIA administrators in the review and administration of EIA's and Basic Assessments.
- **Project management** of numerous environmental and strategic projects



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## Employment History & Project Experience

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### EScience Associates (Pty) Ltd.

January 2010 - Current

Environmental Project Manager

#### Key Projects:

- Department of Environmental Affairs & Tourism (DEAT): Development of a Revised Hazardous Waste Classification System for South Africa (current);
- Assmang Ferrochrome, Machadodorp: Waste Licensing EIA process for the proposed establishment of a proposed Reverse Osmosis Plant at Assmang, Machadodorp operations (current);
- Assmang Ferrochrome, Dwars River Mine: Waste Licensing EIA process for the proposed establishment of a proposed Reverse Osmosis Plant at Assmang, Dwars River Mine (current);
- DEAT EIA Reviewers Training: Development of course material and lectures to train officials nationally in the review of EIAs and decision-making; and
- ClinX Waste Management: Scoping and EIA process relating to Waste License application for proposed Healthcare Risk Waste Incinerator, Wadeville, Gauteng (current).

#### Specialist Training Course Development & Presentation:

- 2010: Training of Government Officials in the Review of EIAs and applications for environmental authorisation;  
Responsible for training of Government Officials responsible for EIA Review at the Gauteng, Eastern Cape, Western Cape and KZN Provincial Environmental Authorities.

### STRATEGIC ENVIRONMENTAL FOCUS (Pty) Ltd.

August 2007 – January 2010

Senior Environmental Project Manager: Pretoria Environmental Division.

Duties include environmental consulting services, project management (technical and financial), mentoring, internal training on Integrated Environmental Management (IEM) and leading a small internal team of environmental managers.

#### Key Projects:

##### *Environmental Impact Assessments:*

- Rainbow Junction Development Company: EIA and Public Consultation Process for the Rainbow Junction Mixed-use Development Node (500 000m<sup>2</sup> of bulk infrastructure), Pretoria North, Gauteng;
- Lonmin Platinum: EIA, Public Participation Process and EMPR development for the proposed Pandora Platinum Mine, Marikana, North West Province;
- Umthombo Resources: EIA, Public Participation Process and EMPR development for the proposed Brummersheim open-cast coal mine, Middelburg, Mpumalanga; and



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- Afrisam: Environmental Assessment for proposed Section 20 waste permit applications for proposed closure of general landfill site, Dudfield, North West Province.

*Integrated Waste Management Planning:*

- West Rand District Municipality (WRDM): Compilation of Integrated Waste Management Plan (IWMP), incl. stakeholder engagement, for the WRDM, in terms of the requirements of the National Environmental Management: Waste Act 2008 (Act No. 59 of 2008)[NEMWA]; and
- Urban Dynamics: Compilation of site specific Waste Management Plan for the proposed Palm Ridge Mixed-Use Development, Ekurhuleni Metropolitan Municipality, Gauteng.

*Due- diligence / Feasibility Assessments:*

- Exxaro / Promethium Carbon JV: Environmental Feasibility Assessments for establishment of proposed power generation (co-generation) projects at numerous (17) mining and industrial sites throughout South Africa; and
- Illovo Sugar: Environmental Feasibility Assessment for proposed establishment of power generation (co-generation) plant at the Ubombo Sugar Mill, Swaziland.

*Environmental Compliance Monitoring (ECO):*

- Abland: Environmental Compliance Monitoring for the construction of the Wonderboom Junction Shopping Centre, Wonderboom, Gauteng;
- TCTA: Environmental Compliance Monitoring for the construction of the TCTA Vaal-Secunda Water Pipeline Project; and
- Gauteng Department of Education: Environmental Compliance Monitoring for construction of the Katlehong Secondary School, Katlehong, Gauteng.

**Rock Environmental Consulting (Pty) Ltd (REC)****April 2006 – August 2007**

Environmental Manager

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

- Driefontein Development Company: EIA and public participation process for the proposed Driefontein Eco-Estate, Wakkerstroom, KZN Province; and
- Acu-group: EIA and public participation for the Serengeti Golf and Wildlife Estate, Kempton Park, Gauteng.

*Environmental Compliance Monitoring (ECO):*

- Acu-group: Environmental Compliance Monitoring for the construction of the Serengeti Golf and Wildlife Estate, Kempton Park, Gauteng; and
- Bigen Africa Consulting Engineers: Environmental Compliance Monitoring for the implementation of the Bapong Water Reticulation Project, Bapong, North West Province.

**Courses**

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- Introduction to Integrated Waste Management: Centre for Environmental Management, Potchefstroom University (April 2009);
- Waste Reduction and Management: Melrose Advanced Training, Glenhove Conference Centre (September 2008); Integrated Environmental Management and Reporting: SEF internal training offered by Andrew Woghiren / Reuben Heydenrych (July 2008); and
- EIA Report Writing: Strategic Environmental Focus (2007).



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# CURRICULUM VITAE

**Brian Gardner**

|                 |                       |
|-----------------|-----------------------|
| Full name       | Brian Michael Gardner |
| Date of Birth   | 4 July 1984           |
| Nationality     | South African         |
| Identity Number | 840704 5364 089       |
| Sex             | Male                  |
| Marital Status  | Unmarried             |
| Languages       | English and Afrikaans |

## Qualifications

- ❖ NDip Env Sci (Environmental Science) Tshwane University of Technology 2006
- ❖ BTech Env Sci (Environmental Science) Tshwane University of Technology 2008, *cum laude*. Major subjects: Integrated Catchment Management, Water Quality Management, Environmental Resources, Environmental Management and Environmental Geohydrology

## Environmental Associations

Founder committee member of the "Friends of Haenertsburg Grasslands" (FROHG), which is a formal associate friends group of the Wildlife and Environment Society of Southern Africa (WESSA).

## Key Experience

5 years of environmental management, environmental education and impact assessment experience. Major focus areas include:

- ❖ Environmental Impact assessment: Basic Assessment, Scoping and EIA applications in terms of the National Environmental Management Act (NEMA)
- ❖ Environmental Management Plans
- ❖ NEMA Section 24G environmental rectification applications
- ❖ Public participation management
- ❖ Urban and rural environmental restoration and rehabilitation
- ❖ Outdoor and environmental education

## Environmental Employment History

### EScience Associates (Pty) Ltd

January 2010 to present

Environmental Assessment Practitioner

Responsibilities include the preparation of Basic Assessment, scoping and EIA reports. Public Participation, Environmental Management Plans, site visits and assessment of specialist studies.

### **Key Environmental Impact Assessment and management projects**

- Dwarsrivier Chrome Mine EMPR update and impacts and aspects register
- Consolidated Wire Industries Basic Assessment report and Air Quality Screening
- Improvon Property Development wetland rehabilitation project and NEMA S24G rectification application.
- Lanxess Newcastle - coal fired power plant EIA
- Environmental Control Officer – BioTherm Energy Biogas recovery/ flaring project for carbon credits and potential future electricity generation
- Pan Palladiums Hydrogeological, floodlines and biodiversity study
- Sylvania Resources Volspruit Mine EIA project (Including all EIA project management, managing specialist studies, Public Participation etc...)
- Aurora Power Solutions Basic Assessments for 2 proposed Photovoltaic solar power plants in the Northern Cape
- Assmang Black Rock mine, Northern Cape – Sinter Plant EIA, future EMPR update and compilation of an IWWMP
- Various other basic assessment project management responsibilities

### **EarthCorps International Traineeship, Seattle, USA February – August 2009**

International Environmental Trainee

International team member and environmental trainee on a multinational Environmental Restoration work crew for 6 months with EarthCorps in Seattle, United States. The primary work involved environmental restoration projects including salmon habitat restoration, invasive plant removal and trail building throughout the Seattle area. The trainee program also focuses on developing and leading environmental education activities with youth of all ages and adults, through supervised environmental volunteer events with multicultural communities. (Refer: [www.earthcorps.org](http://www.earthcorps.org))

### **Mowbray College – Melton, Australia January–December 2008**

Outdoor Education Leader

Employed as an Outdoor Adventure leader/ guide at Mowbray College in Melton, Victoria, Australia. Primary responsibility of leading groups of youth between ages 8 and 18, for up to 7 days at a time, in wilderness environments throughout the state of Victoria, focussing on canoeing, mountain biking, mountain hiking, abseiling, rock climbing, camping, environmental education, minimal environmental impact philosophy and ecology.

### **Heritage Environmental rating system January to July 2007**

Environmental Program manager

Employed part-time as Heritage Environmental Program Manager at Magoebaskloof Hotel and Coach House Hotel, South Africa. Primary tasks included the writing of an environmental management plan, and assessing the hotels level of compliance to the Heritage Environmental Program.

### **Seaton Thomson and Associates, Irene, Gauteng January – December 2006**

Environmental Assessment Practitioner

Primary responsibilities included the preparation of (including field surveys) and final submission of Basic Assessment Reports and Environmental Impact Assessment reports to the Gauteng Department of Agriculture, Conservation and Environment (GDACE). Other tasks included analysing specialist reports for addition into EIA reports, on amongst others fauna, flora and archaeological. Other primary tasks included the preparing Environmental Management Plans, attending and managing Interested and affected parties (I&AP) public meetings and dealing with the public and clients on all matters related to environmental projects.

**Enviro Practice Environmental Consultants** **August – November 2005**

Environmental Assessment Practitioner trainee

Worked at EnviroPractice environmental consultants in Menlo Park, Pretoria as a junior Environmental assessment practitioner and assistant.

**Education**

1990-1993 Haenertsburg Primary School (Haenertsburg, Limpopo Province)

1994-1997 Waterkloof House Preparatory School (Pretoria)

1998-2002 Stanford Lake College (Haenertsburg, Limpopo Province)

2004-2006 Tshwane University of Technology – Environmental Science (NDip)

2007-2008 Tshwane University of Technology – Environmental Science (BTech)

|                 |                    |
|-----------------|--------------------|
| 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

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- 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

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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**

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**Escience Associates (Pty) Ltd**

**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

### **Specialist Training Course Development & Presentation**

- 2007&8 Bridging Training for Environmental Management Inspectors  
Responsible for development of NEMA EIA Review Course and Administrators EIA Review Manual, theoretical and practical training material, and training of Government Officials responsible for EIA Review - responsible for the whole manual other than Law applicable to EIA Review. As at May 2007 approximately 400 officials from DEAT and 9 Provinces have been trained. Project is to be extended to cover the training of officials from DME and additional officials from provinces.
- 2005&6 Bridging Training for Environmental Management Inspectors



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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 IAIA Premium Project finalist in 2006.

**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
- 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



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- 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
- 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)



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- 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)
- 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**

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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:



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*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
- 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



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- 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.
  - 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

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- 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



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

## Qualifications

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- BSc Nat Sci University of Pretoria 1999

## Memberships

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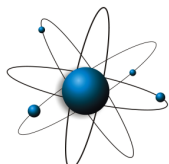
- International Air & Waste Management Association (AWMA)
- National Association of Clean Air of South Africa (NACA)
- Institute for Waste Management of South Africa (IWMSA)
- South African Coal Ash Association (SACAA)
- Geological Society of South Africa (GSSA)
- International Society for the Environmental and Technical Implications of Construction with Alternative and Waste Materials (ISCOWA)
- Fossil Fuel Foundation of Africa (FFFA)
- Botanical Society of South Africa (BSSA)
- International Association of Impact Assessment SA Chapter (IAIAsa)

## Key Experience

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

- **Air quality impact assessment (including quantification of emissions, the development of emission inventories and emission reduction strategies and specialising in dispersion modelling design as well as development of mesoscale atmospheric modelling)** specialising in the mining, manufacturing and power generation sectors emission inventories and emission reduction strategies as well as the development of models to quantify emissions from household combustion of fuel and biomass burning based on GIS and remote sensing methods amongst others).



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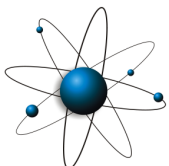
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- **Policy and Legislation development-** Involved development of National Policy on Incineration of Waste, EIA Review and Capacity Building on use of Alternative Fuels and raw materials in Cement Kilns for Department of Environmental Affairs, the development of new Standards for waste classification and hazard profiling system and Regulations to uphold standards for Department of Environmental Affairs as well as the development of regulations proposed for the regulation of Integrated Waste Management Planning in Gauteng Province for Gauteng Department of Agriculture, Conservation & Environment
- **Environmental Assessment** and management planning for the establishment, expansion, upgrade, rehabilitation and optimisation of light and heavy industrial processes including the metallurgical, paper, mining and power generation industries
- **Specialist training** including environmental compliance enforcement training for DEAT Environmental Management Inspectors (**Green Scorpions**) and DEAT development of (and training of 400 officials in) DEAT EIA Review Course and NEMA EIA Administrators EIA Review Manual
- **Environmental legal compliance** assessment as a technical specialist for compliance verification in the metallurgical, paper, mining and power generation industries amongst others including DEAT Project Ferro: Specialist technical advisor to EMI team for compliance inspection and enforcement action in iron and steel and ferroalloy production sectors
- **Management of hazardous waste** including handling, storage, analysis and classification as well as the development of **waste minimisation, treatment and recycling strategies.**
- **Environmental management system development and implementation (ISO 14001 based)** for mining, manufacturing, power generation sectors as well as **Environmental management systems auditing** across various sectors, including Shell Petroleum Development Company Nigeria.
- **Mining permit and licence applications** in terms of the Mineral and Petroleum Resources Development Act, 2002 and **Mine rehabilitation and closure planning.**
- **Due diligence assessments and Environmental liability** modelling for numerous mines, uranium, ferroalloy and iron and steel producers.
- **Development of lichen air quality biomonitoring methods** for monitoring Chrome (VI).
- **Published and presented and papers** at the NACA, IAIA and IWMSA annual conferences dealing with air quality biomonitoring and waste management legislation applicable to the EIA process respectively.
- **Wide ranging interests** including but not limited to 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.



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## Employment History & Project Experience

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**Environmental Science Associates**

**2000 – Present**

### Specialist Training Course Development & Presentation

- 2007&8 Bridging Training for Environmental Management Inspectors

Responsible for development of EIA Review Course and NEMA EIA Administrators EIA Review Manual, theoretical and practical training material, and training of 400 Government Officials responsible for EIA Review - responsible for the whole manual other than Law applicable to EIA Review. As at May 2007 approximately 400 officials from DEAT and 9 Provinces have been trained. Project is to be extended to cover the training of officials from DME and additional officials from provinces.

- 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 IAIAsa Premium Project finalist in 2006.

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

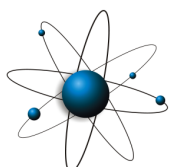
### Environmental assessment

Environmental impact assessments for the following development proposals:

- Assmang Ferrochrome, Machadadorp: EIA for capacity to alternate between ferrochrome and ferromanganese production
- SamancorCr Middelburg: EIA for chrome chemicals plant for the production of sodium chromate, sodium dichromate and chromic acid, and chrome chemicals residue disposal site
- Assmang Ferrochrome, Machadadorp: EIA for New Furnace for ferrochrome production and cogeneration of electric power
- Tsb Sugar RSA / Biotherm cogeneration of steam and electricity using bagasse waste
- 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/Komatipoort Combined Borderpost

Environmental impact assessment review:

- Resort development on farm Epsom 189 KT Limpopo Province
- Krosa Sand sand mine EIA on the farm De Wagendrift Gauteng Province



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### Air quality assessment and emissions modelling

Air quality management planning – policy and legislation

- Highveld Priority Area Air Quality Management Plan (remote sensing, emission inventories and emission reduction strategies).
- Responsible for Mining and Industrial emissions inventorisation for the development of the Ekurhuleni Air Quality Management Plan

Air quality assessment for EIA in power production sector:

- Detailed Air Quality assessment for 600MW FCB Boiler power plant for Xstrata Alloys duff and coal discard for a mining company on Highveld
- Air Quality assessment for 75MW thermal cogeneration FCB Boiler power plant proposed to utilise low grade coal 2% Sulphur in Newcastle as part of Lanxess CISA study
- Tsb Sugar RSA / Biotherm cogeneration of steam and electricity using bagasse waste and assisted in various emissions screening assessments using the US EPA Screen 3 Model
- Screening assessment of Turfontein race course power generation (diesel generator NOx emission)

Air quality assessment for EIA in ferroalloy production sector:

- Heric Ferrochrome cogeneration of steam and electricity from ferrochrome furnace off gas
- Assmang Ferrochrome, Machadadorp: EIA for alternate production of ferrochrome and ferromanganese in existing open furnaces

Other

- 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).

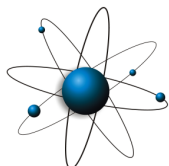
Air quality Biomonitoring: chrome (VI)

- 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.

### 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



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- 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

**Environmental due diligence assessment**

Due diligence assessment on behalf of the buyer:

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 Highveld Steel & Vanadium operations:
  - Highveld Iron and Steel Works
  - Vanchem
  - Transalloys
  - Rand Carbide
  - Mapochs Mine
- Determination and quantification of financial provision for the environmental rehabilitation and closure requirements of mining operations for Samancor Chrome:
  - Middelburg Ferrochrome
  - Ferrometals
  - Tubatse Ferrochrome
  - Western Chrome Mines
  - Eastern Chrome Mines

**Environmental management programme reports and closure plans**

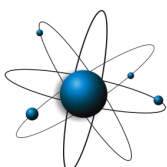
EMPR's in terms of the Minerals Act of 1991 and the Minerals & Petroleum Resources Development Act of 2004:

- Teza Borrow Pit EMPR and closure plan
- 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



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- 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 production facilities
- 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 treatment processes for treating hazardous waste to lower hazardousness.

**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

**Landscape Architects Uys & White (Pty) Ltd**

**1997 – 1999**

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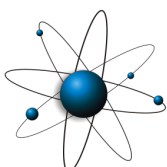
Senior Environmental Manager

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



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**Gouws Uys & White (Pty) Ltd**

1996 – 1997

Environmental Scientist

Environmental Assessment:

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

**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**

Primary and Secondary Education

1980-1986 Primary School: Queenswood

1987-1991 Secondary School: Die Wilgers

Tertiary Education

1992-1996 BEng (Chemical Engineering) – not completed University of Pretoria

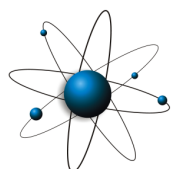
1996-1999 BSc Nat Sci (Ind Chemistry &amp; Geography) University of Pretoria

1999-2000 BSc(Hons) Env Mgt ½ years – not completed University of Pretoria

Courses

1998 Groundwater Modelling MODFLOW University of Zululand

1999 Understanding SABS ISO 14001 SA Bureau of Standards



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# CURRICULUM VITAE

# Roelof Letter

|                 |   |
|-----------------|---|
| Name            | Roelof Letter                               |
| Date of Birth   | 10 March 1988                               |
| Identity Number | 8803105055080                               |
| Sex             | Male  |
| Marital Status  | Unmarried                                   |
| Languages       | Fluent Spoken & Written English & Afrikaans |
| Extra Info      | -   |

## Qualifications

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- Bachelor of Science (Geography and Environmental Management): University of Johannesburg, 2007 – 2009)
- Bachelor of Science (Honours) in Environmental Management (University of the South Africa, 2010)

## Key Experience

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Environmental impact assessments process and report writing

## Employment History & Project Experience

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**Escience Associates (Pty) Ltd**

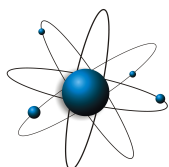
**May 2011 – present**

Environmental impact practitioner

## Education

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1994-2001 Fontainebleau Primary school (Randburg, Guateng)  
2001-2006 Hoërskool Randburg  
2007-2009 University of Johannesburg(BSc)  
2010-2011 University of South Africa (Bsc. Honours(Cum Laude))



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