

CURRICULUM VITAE

Name:	Michiel-Nell Jonker
Physical Address:	82 Gordon Oval, 5 th street, Bergbron, Gauteng, South Africa
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Education

MSc. Environmental Management (2009-current) University of Johannesburg

This is a lectured Masters degree focussing on the concepts and principles of environmental management. The MSc. includes three modules: (1) Environmental management, biosphere and the environment. (2) Environmental management skills and (3) A mini dissertation in related field works.

MSc. Aquatic Health (cum laude) (2007-2008) University of Johannesburg

This Masters study has an ecotoxicological basis. It deals with the effects of androgenic and estrogenic growth-promoting hormones, used in cattle feeding lots, on aquatic freshwater ecosystems. It aims to incorporate biomarkers in fish (metabolomics and cellular energy allocation) as well as studies of general water quality, sediment composition and invertebrate community structures.

BSc. Honours (cum laude) (Zoology) (2006) University of Johannesburg

Related course work: Laboratory and field skills, Philosophy and research methodology, population genetics, project management, mammal diversity, eco-physiology, parasite ecology, ichthyology, research project, biological systems integrity, terrestrial ecology, nature conservation.

Honours Project: Aquatic invertebrate differences in dams and pans (a preliminary study to create a sensitivity index for lentic systems).

BSc. Natural and Environmental Sciences (2003-2005) University of Johannesburg

- . Majors: Geography and Zoology
- . Minors: Environmental management, botany, chemistry, environmental chemistry, biogeochemistry, statistics, information science

Related course work: Cartography, biogeography, soil science, climatology and geomorphology, economic and urban geography, GIS, Geography of Africa and South Africa, invertebrate and vertebrate diversity, parasitology, ecotoxicology, terrestrial ecology and limnology, animal physiology, economic and ethno-botany, plant diversity, plant-water relations, organic and physical chemistry.

Work Experience

- Aquatic Consultant – Ekoinfo – Klipriviersberg Full Aquatic assessment (January. 2009)
- Aquatic Consultant – Ekoinfo – Lonmin Aquatic biodiversity assessment (January 2009).
- Aquatic Consultant – NSS– Optimum Coal Fish diversity assessment (March 2009)
- Aquatic Consultant –NSS – Chapudi proposed coal mine diversity assessment (March 2009).
- Aquatic Consultant – MSA – Aquatic scoping assessment for proposed mining development (March 2009).
- Aquatic Consultant – Lonmin- aquatic biodiversity assessment and action plan (January, 2009).
- Aquatic Consultant – SASOL – aquatic ecosystem impact assessment for proposed pipeline development (January 2009).
- Aquatic Consultant – Arcus Gibb - Aquatic biodiversity assessment for proposed coal mining development (December 2008).
- Aquatic Consultant – ESKOM - Biomonitoring for proposed railroad construction for Eskom (October 2008- current).
- Junior Scientist – Enviross cc - Aquatic macro-invertebrate biodiversity study for proposed feedlot Mpumalanga 2007. (November 2007)
- Junior Scientist – Enviross cc - Tshwane sewerage works bio-monitoring. (September 2007).
- Junior Scientist – Econ@uj - Ecological state of five estuaries in the Wild coast for proposed heavy mineral mining (October 2007).
- Aquatic Consultant – Ekoinfo - Aquatic ecological assessment for proposed golf course development in North West province for Sun City (August 2007).
- Junior Scientist – Enviross cc - Firgrove industrial development in Somerset West 2007 (July 2007) 2007.
- Junior Scientist – Enviross cc - Aquatic health determination and eco-classification for ANGLO coal (Mpumalanga) in 2007 (2007).
- Junior Scientist – Econ@uj - Aquatic health determination and eco-classification for TOTAL coal in 2006 (May 2006).
- Junior Scientist – Econ@uj - Aquatic health and fish diversity assessment at Klipplaat nature reserve, 2006 (September 2006).

- Technical Assistant - University of Johannesburg Zoology department - Aquatic health and biodiversity of the Crocodile West Marico and Magaliesburg system, 2007 (February 2007).
- Technical Assistant – Enviross cc - Owl surveys, 2007 (March 2007).
- Project Manager - University of Johannesburg Zoology department - Aquatic health and biodiversity of lake Chrissie in Mpumalanga, 2007 (April 2007)
- Technical Assistant - University of Johannesburg Zoology department - PhD study regarding effects of pesticides on the freshwater aquatic health in the Levubu River in Venda (Limpopo Province) (February 2008)
- Researcher - University of Johannesburg Zoology department - Presented poster at Zoological society South Africa (ZSSA) in July 2007: Abiotic factors influencing invertebrate community structures in pan and dams in the Mpumalanga highveld area (June 2007)

Workshop and courses

- Accredited practitioner of the SASS5 Macro-invertebrate Assessment Protocol (2007)
- License Holder of a Category "R" skippers licence (2008)
- Computer-literate (Microsoft Office, CANOCO, Primer, SPSS)
- Certificate Holder of an Advanced Driving Course in 4X4 training (2006).
- Attended the Department of Water Affairs and Forestry's Wetland Delineation course (2008)

Societies

- Member of the Southern African Society of Aquatic Scientists (SASAqS) (Jan 2006).
- Member of the Zoological Society of Southern Africa (ZSSA) (Jan 2009).

Presentations

- July 2007: Zoological Society of Southern Africa Conference, Potchefstroom.
Presented at the 33rd Bi-annual Conference of the ZSSA .

Computer skills

- MS Project, MS Word, MS Excel, MS Power Point.
- Ecostatus Response (FRAI)
- PRIMER statistical suite
- Conoco statistical suite

Curriculum Vitae: **Gina Walsh**

Name:	Gina Walsh	Marital status:	Single
Date of birth:	10/07/1981	Driver's license:	Code 8
ID No.:	810710 0037 089	Contact No:	082 422 2793
Place of birth:	Johannesburg, South Africa	Email:	gina@ecotone-sa.co.za
Postal address:	P.O Box 84, Florida, Roodepoort, 1710		

Education

2006- 2009 University of Johannesburg

- **MSc (Zoology) *cum laude***

Dissertation title: *Diatom, Macroinvertebrate and Riparian Vegetation Community Structure Responses in Agriculturally Impacted Rivers.*

2005 Rand Afrikaans University

- **BSc Honours (Zoology) *cum laude***

Completed modules include Environmental Impact Assessment, Aquatic Reserve Management, Indices for Biotic Integrity and Aquatic Ecosystems.

Research project: *A Morphometric and Electrophoretic Analysis of Characters used in the Identification Keys for three Yellowfish species Endemic to southern Africa.*

2001-2004 ▪ **BSc (Zoology and Biochemistry)**

Completed courses in Zoology, Biochemistry, Botany, Microbiology, Chemistry and Physics.

1995-1999 Florida Park High School

- Senior Certificate

Employment and Work Experience

'08 Feb – Pres Ecotone Freshwater Consultants CC Member and Consultant

Recent aquatic ecology projects:

- **Transnet New Multi-Purpose Pipeline**, Environmental Officer, Heidelberg, Gauteng (2009 – Present)
- **Sasol GNP Pipeline**, river crossing and aquatic ecology base line survey for high and low flow seasons, Secunda, Mpumalanga (2008/2009).
- Proposed **Eskom Majuba Railway** line development: Base line surveys and monitoring over a 30 month period, Ermelo, Mpumalanga, South Africa (2008 – 2010).

- Proposed **Mulilo Coal Fired Power Station**: aquatic ecology specialists, Messina, Limpopo, South Africa (2008/2009).
- Proposed **Rio Tinto Chapudi Coal Mine**: ichthyological specialists, Soutpansberg, Limpopo, South Africa (2009).
- Proposed **VanMag Vanadium and Magenetite Mine**: aquatic ecology specialists, Mokopane, Limpopo, South Africa.
- **Optimum Colliery biodiversity assessment**: ichthyological specialists, Mpumalanga, Limpopo, South Africa (2009).
- **Lonmin Platinum Mine** Biodiversity Assessment (Aquatic Ecology) - Karee mine area, North West, South Africa (2008 – 2009).
- **Lonmin Biodiversity Assessment** (Aquatic Ecology) - Boabab mine area, Limpopo, South Africa (2009).
- Proposed **Sun City Vacation Club**: aquatic ecology specialists, North West, South Africa (2008).

'07 Feb-Jan 08' EnviRoss Environmental Scientific Consultants CC Consultant

Recent aquatic ecology assessments:

- **ACSA: OR Tambo International Airport**: ecological assessment and rehabilitation plan for the Blaauwpan, Kempton Park, Johannesburg (2008).
- **Tshwane Waste Water Treatment Works**: aquatic biomonitoring assessments, Pretoria (2007/2008).
- Proposed **Ntaba Nyoni cattle feedlot** development: basic aquatic ecology assessment, Mpumalanga (2007).
- Proposed **Lanseria Business Park** development: basic aquatic assessment, Lanseria, Johannesburg (2007).
- Proposed **Firgrove Industrial Estate** development: basic aquatic assessment, Macassar, Western Cape (2007).
- Proposed **Sun City Vacation Club** development: aquatic ecology scoping report, Ledig, North West Province, (2007).
- **Gauteng Freeway Improvement Project**: basic terrestrial fauna and flora assessment, Pretoria (2007).
- **Mooi River Mall** development: specialist riparian vegetation assessments, Potchefstroom (2007).
- **Walter Sisulu National Botanical Gardens**: quarterly aquatic specialist ecological assessments, Johannesburg (2007).
- **Rand Water Fish Health Assessment**: Fish Health Survey, Vaal Dam (2007).
- Proposed **Braam Pretorius Street Upgrade**: Aquatic ecology assessment, Pretoria (2007).

2006 – 2007

**Econ@UJ
Junior Consultant/ Field Assistant**

- **AngloGold/FOSAF/NRF Yellowfish** Hybridisation Research Project, Vaal Dam (2005).
- **SAPPI Risk Management**: biomonitoring and ecotoxicology field work to develop guidelines for SAPPI paper mill effluent, Elands River Valley, Mpumalanga (2006).
- **Total Coal**, Springbok Siding: aquatic ecology assessments to assess open coal siding impacts on the general Olifants River ecosystem, Witbank, Mpumalanga (2006, 2007).

2006 – 2007

**University of Johannesburg
Lecturing**

- Lecture on the topics of riparian vegetation and diatoms in biomonitoring.
- Mentoring of BSc Hons and MSc students.

- Conduct field trips for honours course.

**2005- 2007 Zoology Department, University of Johannesburg
Graduate Research Assistant**

- Planning field excursions, editing of scientific documents, logistics of workshops and field trips, administrative work, technical support and laboratory work.
- Research support to associate Professor.

Workshops and Courses

- July 2009 South African Society of Aquatic Scientists (SASAqS) Congress**
Beyond rapid assessments - time for an aquatic research renaissance in South Africa.
21-24 June, Magliesberg.
- June 2008 Wetland and Riparian Delineation Course**
Wetland Consulting Services and Department of Water Affairs and Forestry (DWAF)
- Dec 2007 Multivariate Statistics Training**
Collaboration between Wageningen University (Holland) and University of Johannesburg, UJ Eiland, Vaal Dam.
- July 2007 Rivers Database Training**
Department of Water Affairs and Forestry (DWAF) – Resource Quality Services, Pretoria.
- Dec 2006 Environmental Management Systems –WTH Management and Training**
ISO 14001, OHSAS 18001 and development of Environmental Management Systems, University of Johannesburg, Auckland Park, Johannesburg.
- July 2006 EcoStatus Training Workshop**
Determination of the ecological states within the eco-classification process with specific emphasis on aquatic invertebrates and riparian vegetation. Department of Water Affairs and Forestry (DWAF) – Resource Quality Services, 11-13th July 2006, Pretoria.
- April 2006 Diatom Training Workshop**
Diatoms in Biomonitoring. Water Research Commission (WRC), 4th April 2006, Gezina, Pretoria, South Africa.
- Nov 2005 Monitoring Contaminant Levels in Freshwater fish**
Qualified as a Health Assessment Index practitioner through the University of Johannesburg, 7-11 November 2005, RAU Eiland, Vaal Dam.
- Jan 2005 Intermediary 4x4 Driving Skills Course & Boat Handling Course**
Intermediary 4x4 handling and driving skills course. RSG 4x4 Expeditions (2005).
Intermediary boat handling course. Rietvlei Dam, Pretoria (2005).

Societies and Accreditations

- May 2008 The South African Council for Natural Scientific Professions (SACNASP)**
Candidate Natural Scientist in ecological and zoological science, registration number: 100023/08.
- July 2007 SASS5 Accredited Practitioner**
Auditors: Christa Thirion (DWAF, RQS), Colleen Todd (DWAF, RQS) and Hermien Roux

(North West Nature Conservation).

Jan 2006 **Member of the Zoological Society of Southern Africa (ZSSA)**

Jan 2006 **Member of the Southern African Society of Aquatic Scientists (SASAqS)**

Presentations

July 2007 **Zoological Society of Southern Africa Conference, Potchefstroom.**
Presented at the 33rd Bi-annual Conference of the ZSSA
Title: *An Investigation of the Ecological Integrity of the Crocodile and Magalies rivers (Hartbeespoort Dam) with Reference to Agricultural Impacts.*

Sept 2005 **PARSA – Parasitological Society of Southern Africa**
Presented at the 34th Annual International PARSA conference
Title: *Utilisation of Host specificity of Monogeneans as a Taxonomic Indicator of Host Yellow Fish Species*

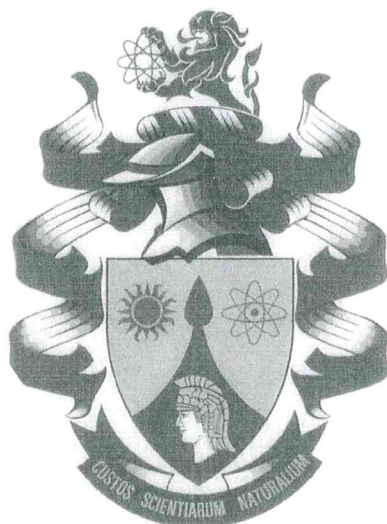
Publications

1. Walsh, G. and Wepener, V. (2009). The influence of land use on water quality and diatom community structures in agriculturally stressed rivers. *Water SA* **35(5)**.
2. Bloomer, P. and Bills, I.R. and van der Bank, F.H. and Villet, M.H. and Jones, N. and Walsh, G. (2007). *Report of the multidisciplinary investigation of differentiation and potential hybridisation between two Yellowfish species Labeobarbus Kimberleyensis and L. Aeneus from the Orange-Vaal system.* Yellowfish Working Group with funding support from AngloGold Ashanti, FOSAF and the National Research Foundation.
3. Ansara-Ross, T., Van den Brink, P.J., Wepener, V. & Walsh, G. (2007). *The use and validation of a probabilistic risk assessment model for estimating potential risks of deltamethrin to the Crocodile River, South Africa.* SETAC – The Society of Environmental Toxicology and Chemistry. Porto, Portugal.
4. Milne, S.J., Walsh, G., Avenant-Oldewage, A. & van der Bank, H.F. (2006). Utilisation of Host specificity of Monogeneans as a Taxonomic Indicator of Host Yellow Fish Species. *Journal of the South African Veterinary Association*, **77(2)**: 92–103

Computer Skills

Competent in the following programs:

- The EcoStatus response suite (FRAI, MIRAI, VEGRAI)
- Canoco and PRIMER v6. statistical suite
- River Database (Version 3)



THE SOUTH AFRICAN COUNCIL
FOR
NATURAL SCIENTIFIC PROFESSIONS

herewith certifies that

Gina Walsh

Registration number: 100023/08

has been registered as a

Candidate Natural Scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice
(Schedule I of the Act)

Ecological Science
Zoological Science

21 May 2008
21 May 2008

21 May 2008

Pretoria

President

Chief Executive Officer

CURRICULUM VITAE: D G Paterson

SURNAME: PATERSON
FIRST NAME(S): David Garry
KNOWN AS: Garry
DATE OF BIRTH: 25-08-1959 in Bellshill, Scotland
NATIONALITY: South African
I.D. No.: 5908255258088
LANGUAGE PROFICIENCY: English, Afrikaans (both fluent), French (poor)
MARITAL STATUS: Married, one son

ADDRESS: Institute for Soil, Climate and Water
Private Bag X79
Pretoria 0001
Republic of South Africa
TEL.: (012) 310 2601
083 556 2458
FAX: (012) 323 1157

E-MAIL ADDRESS: garry@arc.agric.za

ACADEMIC QUALIFICATIONS:

- Matriculated: 1976, Dalziel High School, Motherwell, Scotland
- BSc (Hons) Geography, 1980, University of Strathclyde, Glasgow, Scotland
- MSc (Soil Science) *cum laude*, 1998, University of Pretoria

PROFESSIONAL CAREER:

- 1981-1987: Soil Scientist: Soil and Irrigation Research Institute, Pretoria
- 1987-1992: Senior Soil Scientist: Soil and Irrigation Research Institute, Pretoria
- 1992-present: Senior Soil Scientist: ARC-Institute for Soil, Climate & Water

FIELDS OF SPECIALITY AND COMPETENCE:

- Soil classification and mapping
- Soil interpretations
- Soil survey project management
- Environmental assessment
- Soil survey and land capability course presentation
- Ground penetrating radar

PUBLICATIONS (see attached list):

- Three refereed articles (S.A. Journal of Plant and Soil)
- Nine Congress papers/posters
- S.A. Soil Classification (1991) (Member of working group)
- Seven 1:250 000 Land Type Maps
- Three Land Type Memoirs
- More than 200 soil survey reports and/or maps

COURSES COMPLETED:

- Course in Project Management (University of Stellenbosch)
- Course in Junior Personnel Management (Dept of Agriculture)
- Course in Handling of Grievances and Complaints (Dept of Agriculture)
- Course in Marketing (ARC-ISCW)
- Course in National Qualifications Framework Assessment, ARC-CO
- Training Course in Ground Penetrating Radar (GSSI, USA)
- Introduction to ArcGIS 8, GIMS, 2004

PROFESSIONAL STATUS:

- Registered Natural Scientist (SA National Council for Natural Scientific Professions)
- Member of South African Soil Classification Working Group
- Member of Soil Science Society of South Africa (1982-present)
- President of Soil Science Society of South Africa (2005-2007)
- Council Member of South African Soil Survey Organisation (2002-2003)
- Scientific Referee, S.A. Journal for Plant and Soil
- External Examiner, University of Pretoria and University of Witwatersrand

MISCELLANEOUS:

Editor, Soil Science Society newsletter, 1993-present

Member, Clapham High School (Pretoria) Governing Body 1998-2002

Member, Northern Gauteng Football Referee's Association

Committee Member, Rosslyn Golf Club (Club Champion 2002 and 2007)

INTERESTS:

Sport, especially golf and soccer; wildlife; reading; music

REFEREES:

Mr T.E. Dohse, ARC-Institute for Soil, Climate and Water.
Tel: (012) 310-2504; 082 324 5389

Prof A.S. Claassens, Faculty of Plant Production and Soil Science, University of Pretoria
Tel: (012) 420-3213; 084 581 6488

Prof M.C. Laker (retired), (012) 361-2900; 082 785 5295

PUBLICATIONS LIST:

Refereed Articles:

BÜHMANN, C., KIRSTEN, W.F.A., PATERSON, D.G. & SOBCZYK, M.E., 1993. Pedogenic differences between two adjacent basalt-derived profiles. 1. Textural and chemical characteristics. *S. Afr. J. Plant & Soil*, 10: 155-161

BÜHMANN, C., KIRSTEN, W.F.A., PATERSON, D.G. & SOBCZYK, M.E., 1994. Pedogenic differences between two adjacent basalt-derived profiles. 2. Mineralogical characteristics. *S. Afr. J. Plant & Soil*, 11: 5-11

PATERSON, D.G. & LAKER, M.C., 1999. Using ground penetrating radar to investigate spoil layers in rehabilitated mine soils. *S. Afr. J. Plant & Soil*, 16:131-134.

Book:

SOIL CLASSIFICATION WORKING GROUP*, 1991. Soil classification. A taxonomic system for South Africa. Institute for Soil, Climate & Water, Pretoria.

* Co-author as member of Working Group

Thesis:

PATERSON, D.G., 1998. The use of ground penetrating radar to investigate subsurface features in selected South African soils. Unpublished M Sc Thesis, University of Pretoria.

Congress Papers:

PATERSON, D.G., 1987. The relationship between geology and soil type in the northern Kruger National Park. 14th Congress of the Soil Science Society of S.A. Nelspruit, 14-17 July 1987.

PATERSON, D.G., 1990. A study of black and red clay soils on basalt in the northern Kruger National Park. 16th Congress of the Soil Science Society of S.A. Pretoria, 9-12 July 1990.

PATERSON, D.G., 1992. The potential of ground penetrating radar as an aid to soil investigation. 17th Congress of the Soil Science Society of S.A. Stellenbosch, 28-30 Jan.1992.

PATERSON, D.G., 1995. The complex soil mantle of South Africa. ARC Wise Land Use Symposium, Pretoria, 26-27 Oct. 1995

PATERSON, D.G. & LAKER, M.C., 1998. Locating subsoil features with ground penetrating radar. 21st Congress of the Soil Science Society of S.A. Alpine Heath, 20-22 Jan. 1998.

PATERSON, D.G., 2000. Mapping rehabilitated coal mine soils in South Africa using ground penetrating radar. Eighth International Conference on Ground Penetrating Radar, Gold Coast, Australia, 23-26 May 2000.

PATERSON, D.G. & VAN DER WALT, M., 2003. The soils of South Africa from the Land Type Survey. 24th Congress of the Soil Science Society of S.A., Stellenbosch, 20-24 Jan. 2003

Land Type Maps:

PATERSON, D.G., 1990. 1:250 000 scale land type map 2230 Messina. Dept. Agriculture, Pretoria.

PATERSON, D.G. & HAARHOFF, D., 1989. 1:250 000 scale land type map 2326 Ellisras. Dept. Agriculture, Pretoria.

PATERSON, D.G., PLATH, B.L. & SMITH, H.W., 1987. 1:250 000 scale land type map 2428 Nylstroom. Dept. Agriculture, Pretoria.

PATERSON, D.G. & ROSS, P.G., 1989. 1:250 000 scale land type map 2330 Tzaneen. Dept. Agriculture, Pretoria.

PLATH, B.L. & PATERSON, D.G., 1987. 1:250 000 scale land type map 2426 Thabazimbi. Dept. Agriculture, Pretoria.

Land Type Memoirs:

PATERSON, D.G., PLATH, B.L. & SMITH, H.W., 1988. Field Investigation. In: *Land types of the maps 2426 Thabazimbi & 2428 Nylstroom. Mem. Agric. Nat. Res. S. Afr.* No. 10. Dept. Agriculture, Pretoria.

PATERSON, D.G., SCHOEMAN, J.L., TURNER, D.P., GEERS, B.C. & ROSS, P.G., 1989. Field Investigation. In: *Land types of the maps 2330 Tzaneen & 2430 Pilgrim's Rest. Mem. Agric. Nat. Res. S. Afr.* No. 12. Dept. Agriculture, Pretoria.

PATERSON, D.G., 1999. 1:250 000 land type survey of the former Ciskei (Unpublished). ISCW Report GW/A/99/24.

Also:

PATERSON, D.G., 1992. Ground penetrating radar applications in USA and South Africa. Report on an official study tour to USA, 13-29 July, 1991. ISCW Report GW/A/92/8

PATERSON, D.G., 2000. Report on official overseas visit to GPR2000 Conference, Broadbeach, Australia, 23-26 May, 2000. ISCW Report GW/A/2000/40

Plus ARC-ISCW Reports on:

- Ground penetrating radar investigations in: Kruger National Park; Enseleni, Natal; Weatherly, Maclear; Kleinkopje Mine
- Soil survey investigations at: Roodeplaat, Kathu, Steelpoort River, Palala River, Zeekoegat (Roodeplaat), Limpopo River, Lydenburg, Kendal, Clewer Sand (Witbank), Botha Sand (Witbank), Balmoral Colliery, Bafokeng (Rustenburg), Towoomba (Warmbaths), Hoeveld Stene (Middelburg), Quality Bricks (Witbank), Visagie Sand (Middelburg), Rosslyn, Coalbrook (Sasolburg), Stewart Coal (Delmas), Forzando Coal (Hendrina), Vaalgro (Vereeniging), Ratanda (Heidelberg), Elspark (Boksburg), Thorncliffe Mine (Steelpoort), Jan Smuts Quarry (Boksburg), Ennerdale (Phase I & II), Thokoza, North Riding, Natalspruit (Alberton), Arnot, Kroondal (Phase I & II), Ga-Rankuwa, Hartebeespoort Dam, Kosmos, Assen, Grasmere, Magalies Moot (Pretoria), Valpre (Paulpietersburg), Cargo Carriers (Sasolburg), Waterval (Rustenburg), Rayton,

Bronkhorstspuit, Zwavelpoort (Pretoria), Pietersburg, Trojan Mine (Steelpoort), Platinum Highway (Rustenburg), Moutse, Centurion, Salique (Klaserie), Northam, Greenside Colliery (Witbank), South Deep Mine (Westonaria), Bank Colliery, Steelpoort Platinum, Gautrain Route (Pta/Jbg), Rietspruit Mine (Ogies), Potgietersrus Platinum, Atok Mine (Lebowa), Blue Ridge Mine (Groblersdal), Ngodwana, Estancia (Breyton), Twickenham Mine (Steelpoort), Marikana



ARC-INSTITUTE FOR SOIL, CLIMATE AND WATER
LNR-INSTITUUT VIR GROND, KLIMAAT EN WATER

Private Bag/Privaatsak X79, Pretoria 0001, SOUTH AFRICA/SUID-AFRIKA
Tel: (012) 310 2500 Int: + 27-12 310 2500
Fax/Faks: (012) 323 1157 Int: + 27-12 323 1157
e-mail: iscwinfo@arc.agric.za website: www.arc-iscw.agric.za

Enquiries/Navrae
D G Paterson

Ref. No/Verw. Nr.

14th March 2008

To whom it may concern:

According to the Natural Scientific Professions Act (Act 27 of 2003) **all soil science consulting work** (including soil classification and mapping) may only be carried out by a registered Natural Scientist **in the category Soil Science** under the auspices of the South African Council for Natural Scientific Professions (SACNASP).

Such a registered scientist commits himself to carrying out his consultations honestly, impartially and to the highest possible standards. If he fails to do this he may be sanctioned/suspended through SACNASP.

I confirm that I am a registered natural scientist (Soil Science), I have the necessary expertise and experience and I wholeheartedly commit myself to the principles outlined above.

Yours sincerely,

A handwritten signature in black ink, appearing to be "D G Paterson".

D G Paterson (Pr. Sci. Nat. No. 400463/04)

ARC-Institute for Soil, Climate & Water
Private Bag X79, Pretoria 0001, South Africa

Tel: 012-310-2601; 083 556 2458

Fax: (012) 323-1157

e-mail: garry@arc.agric.za

CURRICULUM VITAE
Johan Abraham van Schalkwyk

PERSONAL PARTICULARS

Date of birth: 14 April 1952
Identity number: 520414 5099 08 4
Marital status: Married; one daughter
Nationality: South African

CURRENT POSITION

Head of Research: National Cultural History Museum.

CURRENT ADDRESS

Work:

P O Box 28088, Sunnyside, 0132

Tel: (012) 324 6082; Fax: (012) 328 5173; E-mail: johnny@nfi.org.za

Home:

62 Coetzer Ave, Monument Park, Pretoria, 0181

Tel/Fax: (012) 347 7270; 076 790 6777; E-mail: jvschalkwyk@mweb.co.za

ACADEMIC QUALIFICATIONS

BA. – 1976 (UP)

BA. (Hons.) Archaeology - 1978 - (with distinction) (UP)

Post Graduate Diploma in Museum Science – 1979 (UP)

BA. (Hons.) Anthropology - 1981 - (with distinction) (UP)

MA. Anthropology – 1985 (UP)

D. Litt et Phil (Anthropology) – 1996 (UNISA)

NON ACADEMIC QUALIFICATIONS

12th HSRC-School in Research Methodology - July 1990

Dept. of Education and Training Management Course - June 1992

Social Assessment Professional Development Course - 1994

Integrated Environmental Management Course, UCT - 1994

EMPLOYMENT RECORD

1978 - present: National Cultural History Museum, Pretoria

1976 - 1977: Archaeology Department, University of Pretoria

PROFESSIONAL EXPERIENCE

1992 - present: Senior researcher: Head of Department of Research. Manage an average of seven researchers in this department and supervise them in their various research projects. Did various projects relating to Anthropology and Archaeology in Limpopo Province, Mpumalanga, North West Province and Gauteng.

1978 - 1991: Curator of the Anthropological Department of the Museum. Carried out extensive fieldwork in both anthropology and archaeology

1976 - 1977: Assistant researcher responsible for excavations at various sites in Limpopo Province and Mpumalanga.

- Curated various exhibitions at different museums. Topics range from ceramics, beadwork and woodcraft to Iron Age archaeology.

- Have done extensive work in the field of heritage impact assessments in Limpopo Province, Gauteng, Mpumalanga, North West Province, KwaZulu-Natal, Western Province, Botswana, Lesotho and Swaziland.
- Did a number of projects regarding the development of arts and crafts and community tourism – Tlokwa, Hananwa, Swazi.

PROFESSIONAL ACCREDITATION

Association for Southern African Professional Archaeologist: Principal Investigator for Iron Age, Colonial Period and Industrial Heritage. Membership no.: 164.

MEMBERSHIPS

Member, Association for Southern African Professional Archaeologists

Member, Anthropology Southern Africa

Member, African Studies Association, Smithsonian Institute, Washington

PUBLICATIONS

Published more than fifty papers on topics relating to anthropology, archaeology, history and impact assessment in various scientific journals - a complete list can be supplied on request.

HERITAGE IMPACT ASSESSMENT

Did more than 800 impact assessments (archaeological, anthropological and social) for various departments and companies. Projects include roads, pipelines, powerlines, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.

CURRICULUM VITAE

LOURENS DU PLESSIS

Name : Lourens Martinus du Plessis
Date of Birth : 1969-11-13
Marital Status : Married
Profession/Specialisation : Geographer / Environmental GIS
Company : MetroGIS (Pty) Ltd
Years with Firm : 10 Years
Nationality : RSA
Position : Director / Project Manager
Years Experience : 19 years

KEY QUALIFICATIONS

Primary Function:

The application of computerised systems in environmental planning and management, impact assessments and spatial modeling.

Experience and Expertise

- Data Sourcing and Acquisition
- Data Capture
- Data Evaluation
- Data Conversion and Transfer
- GIS Database Development, Implementation and Maintenance
- Spatial Analysis (Visibility, Slope, Aspect, etc.)
- Digital Elevation Modeling
- Terrain Evaluation
- Image Processing
- Impact Assessment and Impact Management
- Environmental Management
- Decision Support Systems Interface Development
- Project Management
- Map Production, Display, Queries and Reporting
- Environmental Sciences Expertise
- Process Development

Technological (Software) Expertise

- Arc/Info and ArcGIS
- ArcView
- PlanetGIS
- Vistapro (Virtual Landscape Rendering Software)
- Various GIS Support Software Packages
- Range of Microsoft Standard Applications

AWARDS

Award: Best South African Environmental Technical Paper
Awarded for: National Environmental Potential Atlas (ENPAT National)
Awarded by: Environmental Planning Professions Interdisciplinary Committee (EPPIC)
Date: 1995

Award: Map Gallery Most Analytical Competition - 3rd Place
Awarded for: Environmental Potential Atlas for South Africa

Awarded by: Environmental Systems Research Institute (ESRI)
Date: 1997 International ESRI User Conference

Award: Best Cartographic Map Gallery Competition - 3rd Place
Awarded for: Environmental Potential Atlas for South Africa (Publication)
Awarded by: Environmental Systems Research Institute (ESRI)
Date: 1998 International ESRI User Conference

Award: QDC Performance Award
Awarded for: ENPAT Development
Awarded by: Q Data Consulting
Date: 1998

Award: Best South African Environmental Technical Paper
Awarded for: Environmental Potential Atlas for South Africa (Publication)
Awarded by: Environmental Planning Professions Interdisciplinary Committee (EPPIC)
Date: 1998

PUBLICATIONS

Name: Environmental Potential Atlas for South Africa
Authors: W. van Riet, J. van Rensburg, P. Claassen, L. du Plessis and T. van Viegen
Publisher: J.L. van Schaik
Date: 1997

Name: Pilanesberg Official Map and Park Guide
Authors: North-West Parks & Tourism Board and Jacana
Publisher: Jacana Media (Pty) Ltd
Date: 2001

Name: Lowveld and Kruger Guide
Authors: High Branching Team
Publisher: Jacana Media (Pty) Ltd
Date: 2004

Name: Kruger National Park Map and Photographic Guide
Authors: Andy Tinker Photography
Publisher: Andy Tinker Photography
Date: 2007

EXPERIENCE RECORD

Employment Details

GisLAB CC (Geographic Information Systems Laboratory - University of Pretoria)
Period: 4/1990 - 9/1997
Position: Member / Project Manager

GISBS (Geographic Information Systems Business Solutions - Q Data Consulting)
Period: 10/1997 - 10/1999
Position: Project Manager

MetroGIS (Pty) Ltd
Period: 11/1999 - to date
Position: Director / Project Manager

EDUCATION

Qualifications

Degree: BA (University of Pretoria) Geography and Anthropology (Majors)
Other Subjects: Archaeology, Philosophy and Political Science
Date Received: 1993

PROJECT SUMMARY

(A brief description of some prominent and relevant projects)

Environmental Planning and Development Control Schemes for the Drakensberg Babangibone, Garden Castle and Cathkin Peak Development Nodes.

Environmental Potential Atlases (ENPAT) for South Africa (National), Provincial (1:250 000) and Metropolitan (1:50 000).

Environmental Management Frameworks (EMF) for South Africa at a provincial (1:250 000) scale.

Spatial Development Initiatives (SDI) for Lubombo SDI, Coega Industrial Development Zone, West Coast SDI and Wild Coast SDI.

EMF's (Digital Decision Support Systems) at local council scale for Hennops River, Centurion, Windhoek, the Alexandra Renewal Project, Siyanda District Municipal area, Ekurhuleni, etc.

Gauteng Open Space Project (GOSP) GIS-based open space planning for the Gauteng Province.

Gauteng Communication Strategy (GAUCONS) environmental control zones to regulate the construction of telecommunication masts.

SEA (Strategic Environmental Assessments) for Faerie Glen Nature Reserve and Rustenburg Municipality (Priority Area 1).

Environmental Impact Assessments (EIA) the utilisation of GIS based systems to determine and manage environmental impacts. Various projects all over South Africa.

GIS services for the Limpopo National Park (Trans-frontier Peace Park) in Mozambique.

Gauteng Supplementation and Implementation of EIA Regulations Project.

Visual Impact Assessments and Viewshed Analyses for various types of developments, including telecommunication structures, mining activities and tourism accommodation in National Parks and other environmentally sensitive areas. Some recent or current projects include:

- Proposed Atlantis Open Cycle Gas Turbine power station
- Kynoch Gypsum Tailings dam extension
- N1 Western Bypass Shell service station
- Coega regional hazardous waste processing facility
- Robinson Deep landfill extension
- Hazardous waste blending platform
- Mercury-Ferrum-Garona transmission line integration
- Matimba B (Medupi) proposed coal-fired power station
- Concentrating Solar Power (CSP) plant
- Zeus to Mercury transmission line (comparative viewshed analyses)
- Mmamabula (Botswana) transmission line and power station viewshed analyses
- Petronet new multi-products pipeline
- Wind energy facility in the Western Cape province

- Ankerlig power station conversion and transmission line
- Kyalami strengthening project
- Steelpoort integration project
- Medupi reservoir

PROFESSIONAL AFFILIATIONS

None

LANGUAGES

	<u>Reading</u>	<u>Writing</u>	<u>Speaking</u>
Afrikaans	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

CONCISE CURRICULUM VITAE OF LUCIAN W. BURGER

Lucian Burger was born in the Eastern Cape, in the town of Cradock on 24 May 1960. He is currently the Managing Director of Airshed Planning Professionals (Pty) Ltd and serves on the board of directors of Riscom (Pty) Ltd. Airshed Planning Professionals is a technical and scientific consultancy providing scientific, engineering and strategic air pollution impact assessment and management services and policy support to assist clients in addressing a wide variety of air pollution related risks and air quality management challenges. Riscom specialises in quantitative process risk assessments, including HAZAN, HAZOP, WHAT-IF analyses, detailed risk assessments, Major Hazard Installation (MHI) and incident investigations, and other risk related studies. Software design and development of air pollution dispersion models, dynamic process outflow and evaporation models, consequence models and database applications are maintained in Environmental Management Services.

He completed his bachelor's degree (cum laude) in chemical engineering at the University of Natal in 1982. His postgraduate studies (MSc Eng and PhD) were specifically focussed on the development of dispersion modelling theory and related software applications. These degrees were completed in 1984 and 1986, respectively.

Air pollution consultation consulting services started in 1990 with an international contract on the evaluation and validation of transport models as applied to the Chernobyl accident of April 1986 (International Atomic Energy Agency). Since then, numerous atmospheric dispersion studies have been completed locally and internationally, ranging from environmental impact assessments, risk and hazard assessments, meteorological studies, process designs, to the development of toxic gas evacuation response systems, and other related software.

1. QUALIFICATIONS

PhD (Chemical Engineering)	University of Natal	1986
MSc Eng (Chemical Engineering)	University of Natal	1984
BSc Eng (Chemical)	University of Natal	1982

2. CAREER HISTORY

Managing Director	Airshed Planning Professionals (Pty) Ltd	March 2003 onwards
Director	Riscom (Pty) Ltd	October 2003 onwards
Managing Member	Environmental Management Services CC	April 1990
Process Engineer	AECI Consulting Engineering Department	1989 to 1990
Senior Researcher	Council for Scientific and Industrial Research	1987 to 1988
Research Assistant	University of Natal, Department of Chemical Engineering	1983 to 1986

3. CONSULTANCIES

- **National Authorities**
 - Department of Environment Affairs and Tourism
 - Department of Water Affairs and Forestry
 - Department of Minerals and Energy
 - Department of Trade and Industry
 - Department of Labour
 - Foundation for Research Development
- **Community/Industry/Local Authorities**
 - Durban South Air Quality Management System – (installed the first system of the kind in South Africa - 1993)
 - Richards Bay Air Quality Management System
 - Coega Industrial Development Zone, Port Elizabeth
 - East London Industrial Development
 - Rustenburg Air Quality Forum.
 - Vaal Triangle Air Quality Management
- **Universities**
 - University of Natal
 - University of Witwatersrand
 - University of Joburg
 - University of Pretoria
 - University of the North
- **Industries** - On consultancy list for most major industries.

4. MEMBERSHIPS

- South African Institute of Chemical Engineers (*Fellow: No. 4533*)
- American Institute of Chemical Engineers (*Senior Member: No. 0090107071*)
- National Association of Clean Air (NACA)
- Accredited Inspectorate Authority (AIA) for completion of risk assessments as partial fulfilment of Major Hazard Installation Regulations (*Reference MHI013*)
- SANAS Risk Assessment Specialist Technical Committee (2003 - ongoing)
- Member of the Technical Committee on Air Quality Standards Setting (2002-2003)
- SABS Air Quality Standards Specialist Technical Committee (*Chairman of Working Group 1*)

5. EXPERIENCE

The main focus of his technical career has been to develop and share skills and mathematical methodologies used to describe the physical processes that result in exposure from contaminants in the atmosphere. These processes may be divided into three distinct groups, namely

- (a) the establishment of the emission source,
- (b) describing the behaviour of the atmosphere and the contaminant, and

- (c) assessing the degree of exposure to the contaminant (health risk, nuisance, property damage, ecological impacts).

His contribution to these processes varied from fundamental developments of mathematical theories to the adoption of widely published techniques into systems that allow practical assessment of exposures to air pollutants.

The most widely known development was perhaps the HAWK Real-Time Dispersion Model. The HAWK software is a mathematical tool that simulates the emission, transport and dilution of toxic chemical releases into the atmosphere, albeit routine or accidental. The theoretical developments in the software include simulation modules to describe both static and temporal behaviour of emission sources. These range from stack vents to spillage from pressurised vessels. The simulation of pressurised vessels includes foaming, flashing, droplet formation and the evaporation of the non-flashed fractions. Modules were also developed to simulate three-dimensional wind fields that operate in near real-time using multiple meteorological measurements (3-dimensional). The puff-based dispersion model have been optimised specifically to run in real-time conditions, allowing for spatially and temporally changing conditions over short durations. A unique contouring package was similarly developed to accommodate the display of concentration levels at very fine resolutions.

Similar tools have been developed to address other atmospheric releases, such as landfill gas generation, cooling tower plumes, water-reactive plumes (e.g. silane), sulphur storage fires and associated products and wind erosion from exposed surfaces (e.g. ADDAS Model).

The timeous development of these methodologies enabled many successful air pollution and risk assessments in an increasingly complex industry. Projects have been completed for the petrochemical and chemical industries, mining operations, metal recovery (pyrometallurgy and hydrometallurgy), cement industry, pulp and paper, power generation (conventional and nuclear), landfill and wastewater treatment facilities, incineration operations, manufacturing of herbicides and pesticides, airports, vehicle impacts (e.g. roadways, city centres, filling stations), etc.

Due to his active involvement in the field of air pollution and quantified risk assessments, he has also been invited to serve on cooperative projects and steering committees for strategic decision support and the development of standards and methodologies. Examples of decision support include the

Planning of Industrial Development Zones (IDZ). Both the *Coega Industrial Development Zone*, near Port Elizabeth and the *East London Industrial Development Zone* were the first projects of their kind that included a comprehensive air pollution management plan during the preparation stages of the IDZ. These projects were initiated in mid-1990's and continued for a number of years until final acceptance and authorisation. The project deliverables included guidance in the location of industrial sectors and the setting of air quality criteria, which had to be met by prospective developers. The criteria used to establish these guidelines and criteria were based on the identification of potential pollutants and their environmental impacts, which included human, fauna and flora. The air quality criteria had to take cognisance of the potential cumulative impacts from all the proposed development sectors.

Later projects of a similar nature, albeit after the development zones have already been established, include the Richards Bay Air Quality Air Management System and the South Durban Industrial Basin Air Quality Management System.

Formulation of Regulative Strategies [e.g. landfill buffer designs, thermal treatment of sewerage, low-smoke fuel strategies planning, vehicle fuel specifications, application of dispersion models and parameters in the nuclear industry]

Provision of Expert Testimony [e.g. Herbicide Contention Case: Victory Farm v HL&H Timber Products (Pty) Ltd, Rautenbach Aerial Spraying Ltd, Alan James McEwan; SAPREF Alkylation Unit Fire, Rhone-Poulenc Warehouse fire, Shell-Sasol Alcohol Reformulation Contention; Kudu Oils v Department of Environmental Affairs and Tourism), Global Forest Products (Pty) Ltd & Others v Lone Creak River Lodge (Pty) Ltd & Others; Pride Milling Company (Pty) Ltd v Klipspruit Colliery & Others; Triple S Dientsstasie Edms Bpk / P Senekal; PetroSA v Langeberg Shopping Mall, PetroSA v Visigro Investments]

Numerous air quality modelling analyses for **Environmental Impact Assessments**.

Mining and Ore Handling

*Blasting; quarrying;
grinding; crushing;
conveying; vehicles;
tailings dams; etc*

BHP-Billiton Bauxite Mine (Suriname), Exxaro Heavy Minerals Mine and Processing (Madagascar), Tenke Copper Mine and Processing Plant (DRC), Sari Gunay Gold Mine (Iran), Zaldivar Copper Mine (Chile); Gold Mine at Omagh (Ireland); ZCCM Luancha Copper mine (Zambia); Skorpion Zinc mine (Namibia); Rossing Uranium (Namibia); Trekkopje Uranium (Namibia); Gokwe Coal Mine (Zimbabwe); Murowa Diamond Mine (Zimbabwe); Gamsberg Zinc Mine (Aggeneys); Prieska Copper mine (Prieska); Numerous coal collieries (Anglo Coal, Exxaro, Xtrata); Lime Quarries (La Farge, formerly Blue Circle, East London and Otjiwarongo, Namibia); Clinker Grinding and Cement Blending Plant (La Farge, Richards Bay); Bluff Mechanical Appliances – Durban Coal Terminal; Portnet's Saldanha Ore Port Facility; and others.

Metal Recovery

smelting; electro-winning

Samancor/Kermas Air Quality Baseline for all South African Chromium Smelter and Mines (Ferroveld, Ferrometals, MFC, Columbus, Tubatsi, Western Chrome Mines, Eastern Chrome Mines), Hexavalent Chromium Air Quality Reference Document (FAPA), Hartley Platinum Smelter (Zimbabwe); Mufulira Smelter (Zambia), Nkana Smelter (Kitwe, Zambia); Waterval Smelter (Amplats, Rustenburg); Lonrho Smelter (Brits); Ergo (Anglo American Corporation, Springs); Coega Zinc Refinery (Billiton, Port Elizabeth); Hexavalent Chrome and Lead (Winterveld Chrome Mines); Hexavalent Chrome Xstrata (Rustenburg); Pitch releases from graphite electrode (EMSA, Union Carbide, Meyerton); Copper Smelting (Palabora Mining Company, Phalaborwa); Portland Cement Plant (La Farge, East London and Otjiwarongo, Namibia); Westplats – Mooinooi Smelter (Brits), Holcim Alternative Fuels Project (Lichtenburg, Ulco and Blending Plant – Roodepoort), PPC Riebeeck West Expansion Project

Chemical Industry

bulk chemical; fertilizer; herbicides; pesticides

Various Pollutants from AECI (Pty) Ltd Operations, including Modderfontein, Umbogintwini, Somerset West, New Germany and Richards Bay; Kynoch Fertilizer plants in Milnerton and Potchefstroom; Fedmis Fertilizer Plant in Phalaborwa; Pesticides and Herbicides at Sanachem (Canelands); Chrome Impacts from various Bayer (Pty) Ltd operations (Newcastle and Durban); Fibre Production (Sasol Fibres, Durban); NCP Chloorkop Expansion project, NCP Chloorkop Contaminated Soils Recovery

Petrochemical Industry

Petroleum refineries, tank farms

Baseline and Expansion of Liquid Natural Gas Refinery (Equatorial Guinea); Site Selection for New South African Petroleum Refinery (DME), Proposed new Greenfields Petroleum Refinery at Coega (PetroSA), Hydrogen sulphide and sulphur dioxide emissions from SASOL operations (Sasolburg and Secunda); Saslo Coal to Gas Conversion Project (Sasolburg), Natref Refinery Expansion Project (Sasolburg); Engen Emissions Inventory Functional Specification (Durban); Air impact of air emissions from Sapref Refinery (Durban) Odour Impact assessment at ChevronTexaco Refinery (Cape Town); PetroSA (Mossel Bay), Air impact of air emissions from Killarney, Milnerton and Saldanha Bay bulk storage tanks, Ambient air sampling campaign and Health Risk Analysis at Major Highway, Toll Plazas, Filing Stations and Taxi Ranks (Sasol)

Power Generation

stack emissions; coal and ash dump

Kelvin Power Station (Johannesburg); Athlone Power Station (Cape Town); Tatuka, Kendal, Matimba, Duvha and Majuba Power Stations, ESKOM; Open Cycle Gas Turbine Peaking Power Station (Mosselbay), Enhamabane Power Station, Mozambique.

Waste Disposal

Incineration; landfill; evaporation; waste water treatment

All Enviroserv disposal sites (Chloorkop, Margolis, Umlazi, Vissershok, Shongweni, Aloes, Holfontein, Rosslyn), Cape Town City Council, Durban City Council, Johannesburg City Council; East London City Council; Port Elizabeth City Council; etc

A number of unusual projects have also been completed, for example calculating the emissions of rocket motor exhaust gases for proposed satellite launching programme, and determining local and global (ozone layer) impacts. Pollutants included hydrogen chloride, aluminium oxide, nitrous oxides, etc.

Quantitative Acute Health Risk Assessments and Consequence Modelling: Air Products Durban plant (Hydrogen); Full assessment (chlorine, ammonia, acrylonitrile, sulphur dioxide) AECI, Umbogintwini Factory Complex; Oleum Storage Tank Farm - Lever Brothers. Boksburg; Ammonia Tank Farm - Palabora Mining Company, Palaborwa; Ammonia Refrigeration Unit, Palabora Mining Company, Palaborwa; Chlorine Dosing facility

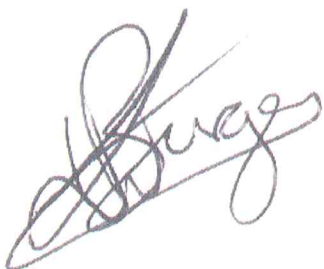
- Palabora Mining Company, Palaborwa; Accidental liquid Bromine spills and fugitive gas emissions at Delta-G Scientific, Halfway House; Accidental emissions and spills of organo-pesticides at Sanachem, Verulam. Burning of waste dumps in Botswana (Botswana Government). Chlorine Dosing Facility at mining operations (Rustenburg); Dispersion and Consequence Modelling of Toxic Liquid Spills (e.g. Acrylonitrile and Propylene Oxide), Combustion Products (e.g. Hydrogen Cyanide), Bund Fires and Vapour Cloud Explosions of a large number of storage tanks at Vopak (formerly Van Ommeren) Tank Terminals, Durban Harbour, Fire at Sapref Refinery Alkylation Unit; Risk assessment of ammonia, hydrogen fluoride and nitric acid Columbus Stainless (Middelburg); Natural Gas Pipeline from Mozambique to Secunda (Sasol Gas).

Various developments of dispersion modelling software programs include:

Development of real-time atmospheric dispersion model - *HAWK*: Atomic Energy Corporation of South Africa; CALTEX, Cape Town; NCP CHLOORKOP, Kempton Park; MOSSGAS, Mosselbay; PALABORA MINING COMPANY, Palaborwa; AECI, Umbogintwini; AECI, Modderfontein; SASOL, Secunda; SASOL, Sasolburg; SAPREF Refinery, Durban; ENGEN Refinery, Durban; ESKOM, Majuba Power Station; South Durban Air quality management system (Joint venture between major industries, authorities and community); SAPPI-SAICCOR, Umkomaas; HARTLEY PLATINUM, Zimbabwe, Richards Bay Air Quality Committee (Joint venture between major industries, authorities and community), ISCOR, Newcastle; ISCOR, Vanderbijlpark.

Related software packages: Simulation of cooling tower plumes (AECI and SASOL). Convective boundary layer model for ESKOM. Fugitive ash emission model (*ADDAS*) for ESKOM. Landfill emissions model for Waste-Tech. Low-smoke coal impact screening model for Department of Mineral and Energy Affairs. Statistical and data management of air pollution parameters for ESKOM (*HIPPO*). Meteorological parameter estimator (*OWL*) for Zambian Consolidated Copper Mines (Zambia). Wind erosion and meteorological parameter estimator (*OWLx*) for Driefontein Mine.

Statistical analyses of air pollution and meteorology monitoring networks (e.g. Vaal Triangle Air Quality Project, Design Specifications for Nuclear Power Plant).



JULY 2009