

CURRICULUM VITAE

Environmental

Company	ARCUS GIBB
Name	Jaana-Maria BALL
Nationality	South African
Date of birth	22.12.1969
Profession	Environmental Scientist and Botanist/MBA
Position	Director
Specialisation	Project management, integrated environmental management including environmental impact assessments, environmental management programmes, botanical investigations, revegetation and rehabilitation programmes, integrated development planning; public facilitation, environmental auditing; and public private partnership advisory services
Start date with ARCUS GIBB	1997 – Permanent full-time staff member

Key experience

An environmental scientist with a Masters Degree in Business Administration and with 15 years of experience, Jaana-Maria Ball specialises in various environmental disciplines:

Her key experience includes:

- **Business administration and development** providing leadership and management of two business units (Environmental and Support Services) including strategic planning, financial performance, workload and resource planning, human resource management, quality management, review of projects and proposals, quality management and administration. Environmental Services comprises integrated environmental planning, hydrological and waste management services. Support services comprises human resources, information technology and marketing services
- **Project management** of various medium and large-scale infrastructural and environmental projects
- **Environmental advisory services and strategic environmental management** including Strategic Environmental Assessments and environmental scans
- **Environmental impact assessment (EIA)** of small, medium and large-scale infrastructure projects, including public participation processes
- **Environmental management programmes (EMP)** for the construction and operational phases of infrastructure developments
- **Environmental sensitivity and land-use suitability analyses** for various projects and biomes
- **Environmental management programme reports (EMPR) and mining permit applications** for borrow areas and mines in terms of the Mineral and Petroleum Resources Development Act of 2002
- **Vegetation studies** for ecologically sensitive areas within the Fynbos, Afromontane and Succulent Karoo Biomes
- **Rehabilitation and landscape plans** for various developments, particularly mining operations
- **Environmental auditing** including due-diligence, ISO 14001, legal compliance and waste audits
- **Integrated development planning (IDP)** including the management, facilitation and development of integrated development plans

- **Integrated Water Use Licensing Applications and General Authorisations for Water Use** to meet the requirements of the Department of Water Affairs and Forestry, and
 - **Public Private Partnership Advisory Services** in the procurement and delivery of infrastructure
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Qualifications and Registrations/Certifications

Bachelor of Science in Botany and Zoology : University of Cape Town, 1990
Bachelor of Science (Honours) in Botany : University of Cape Town, 1991
Master of Science in Botany (Ecology) : University of Cape Town, 1995
Integrated Environmental Management - Theory and Practice : University of Cape Town, 1996
Business Management Diploma : Damelin College, 1996
Project Management (post-graduate course) : University of Cape Town, 2001
Master of Business Administration (MBA) : University of Cape Town, 2003 (Full-time) and ESADE (Barcelona, Spain) (Full-time)
Professional Member of the South African Council for Natural Scientists, 1998 to date
PriSciNat No : 400049/89
Professional Member, South African Institute of Ecologists and Environmental Scientists, 1998 to date
Professional Member, South African Association of Botanists, 2000 to date
Certified Environmental Impact Assessment Practitioner, Interim Certification Board, 2006 (application in process)
Associate Environmental Auditor with Institute of Environmental Management and Assessment, 2006 (registration in process)

Career summary

- Jan 2008
Present **ARCUS GIBB** – Discipline Leader and Director: Environmental Services; Organisational Manager Environmental Services North; Director; Support Services (IT, HR, Marketing, Knowledge Management); PPP Advisory Services; ARCUS GIBB Corporate Strategy Roll Out Team
- Oct 2006 to
Dec 2007 **ARCUS GIBB** – Discipline Leader and Director: Environmental Services; Director; Support Services (IT, HR, Marketing); PPP Advisory Services; Committee Member: ARCUS GIBB Employment Equity Committee; Head: ARCUS GIBB Corporate Strategy Roll Out Team; Chair: ARCUS GIBB Remuneration Committee; Member: ARCUS GIBB Bursary Committee
- April 2005 to
Sept 2006 **ARCUS GIBB** – Director; National Group Manager of Environmental Services Division, Member: ARCUS GIBB Operational Management Team; Member: ARCUS GIBB Employment Equity Committee, PPP Advisory Services
- April 2004 to
April 2005 **ARCUS GIBB** – Senior Associate; National Group Manager of Environmental Services Division, Member of Operational Management Team, PPP Advisory Services
- Jan 2003 to
April 2004 **UCT and ESADE's (Barcelona, Spain) Business School's Full-time Master of Business Administration (MBA) and Exchange Programme**
- April 2002 to
Jan 2003 **ARCUS GIBB** – Associate; Division Manager of Environmental Services Division Cape Town; Business Development Manager, Southern Region
- Jan 2000 to
Mar 2002 **ARCUS GIBB** – Associate; Division Manager Environmental Division Cape Town
- April 1998 to
Dec 1999 **GIBB Africa** – Principal Environmental Scientist
- Feb 1997 to
March 1998 **GIBB Africa** – Environmental Scientist

Key projects include:

Strategic Advisory Studies

- Project director as part of the Strategic Advisory Team to the Airports Company South Africa for the proposed Midfield Development at O.R. Tambo International Airport
- Project director as part of the Strategic Environmental Technical Support Team to the Gauteng Provincial Government for the R20 million Gautrain Project. Technical support will be provided during the construction and operational phases of this flagship transport service

Strategic Environmental Assessments

- Project director for the Strategic Environmental Assessment (SEA) and Integrated Waste Management Plan for the Greater Port Harcourt, Nigeria
- Project director for the George Municipality Strategic Environmental Assessment (SEA) for 1 068 km² municipal area in support of the Spatial Development Framework and seven Strategic Development Plans

- Project director for the Strategic Environmental Assessment (SEA) 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
- Project director for the Strategic Environmental Assessment (SEA) 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
- Project director for the Strategic Environmental Assessment (SEA) for the Magaliesberg and Mulderdrift Regions for Eskom. The SEA considers the environmental attributes of the study area and suggests an environmental planning framework specific to the needs of Eskom Distribution

Environmental Studies (including Land-Use and Sensitivity Analyses)

- Project director for the environmental scans for the Baralink Commuter Rail Corridor in the City of Johannesburg Metropolitan Municipality. The environmental scan involved the identification of environmentally sensitive areas in close proximity to the proposed Rail Corridor and the suggestion of recommendations for the preliminary design stage of the project
- Project director for the environmental scans for the PWV 10 (Metro Boulevard) in the City of Johannesburg Metropolitan Municipality. Sensitive environmental features were identified spatially and these areas were incorporated into the preliminary design of the road
- Project manager for the environmental study to investigate the proposed irrigation schemes within Olifants/Doring River catchment. The Western Cape Olifants/Doring River Irrigation Study (WODRIS) is a comprehensive study for the Provincial Administration of the Western Cape (PAWC) and is in line with government objectives of integrated river basin management and human settlement
- Project manager for the biophysical assessment of the Spier Development. A development planning process was initiated with the two local authorities, the Stellenbosch Municipality and the Winelands District Council. The proposed development consists of building, recreational and agricultural development types. ARCUS GIBB was appointed to undertake a biophysical assessment and land-use planning exercise as part of the scoping study for the Master Vision of the Spier Development
- Project manager for the environmental sensitivity analysis for Elandsjagt Farm, at the western end of the Du Toit's Kloof valley. ARCUS GIBB was appointed by Intersite Property Management Services to undertake an opportunities and constraints study in order to determine the viability of developing the site for commercial purposes
- Project manager for the environmental sensitivity analysis for proposed development at Grotto Bay on the West Coast. ARCUS GIBB was appointed to compile an environmental sensitivity analysis report to guide the planning process for development. This analysis involved the assessment of the baseline biophysical conditions of the site, the identification of the main environmental issues that could affect the proposed development of the study site and recommendations for mitigation measures

- Project scientist for the Swartklip Environmental Study. A division of DENEL (Pty) Ltd, Swartklip Products, plan to redevelop portions of their 540 ha site near Khayelitsha in Cape Town. ARCUS GIBB undertook an environmental analysis of the site to determine which parcels of land were suitable for development purposes

Environmental Impact Assessments (EIA)

- Project director for the Basic Assessment processes for the Basic Assessment processes for nine proposed Co-generation Power Plants for the Promethium-Exxaro Joint Venture. This project includes nine cogeneration power plants, to be installed at mines and industrial facilities across South Africa, for the generation of electricity from waste gas. The projects will enable the project initiator to earn Carbon Credits through the Clean Development Mechanism in terms of the Kyoto Protocol under the United Nations Framework Convention on Climate Change.
- Project director for the EIA and EMP for the proposed Transmission Lines for a conventional nuclear power station and associated infrastructure at the Bantamsklip site in the Western Cape (Nuclear 1). The project proponent is the Transmission Division of Eskom Holdings Limited. The EIA includes the screening and selection of suitable corridors, as well as a scoping process and detailed environmental impact assessment. The project includes detailed specialist studies, including social, economic, visual and biophysical, EIA process, public consultation and legal
- Project reviewer (internal) for the EIA and EMP for the proposed upgrade to the Sani Pass, Kwa-Zulu Natal. The project proponent is the Department of Transport. The EIA includes a scoping process and detailed environmental impact assessment, including specialist studies
- Project director and reviewer for the Strategic Process Review of the EIA to be undertaken for the Medupi Integration Project in the Limpopo Province including transmission lines and substations for Savannah Environmental
- Project director for the EIA and EMP for the construction of 2 runways (comprising a new re-aligned runway and second parallel runway) and the Basic Assessment for the upgrade of the access roads at the Cape Town International Airport, for the Airports Company of South Africa (ACSA)
- Project director for the George Western Bypass Road EIA for a 13 km bypass road linking the Outeniqua Pass to the National Road near the George Airport. The proposed road passes through a sensitive socio-economic area comprising 40 small rural properties. Provincial Government of Western Cape
- Project director for the EIA and EMP for the proposed construction, operation and decommissioning of the Pebble Bed Modular Reactor and associated infrastructure in the Western Cape. The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies
- Project manager for the EIA and EMP for the proposed construction, operation and decommissioning of a conventional nuclear power station and associated infrastructure in the Western Cape (Nuclear 1). The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes the screening and selection of a suitable site for the nuclear plant, as well as a scoping process and detailed environmental impact assessment. The project includes 20 detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies

- Project director for the EIA and EMP for the proposed expansion of the Morupule Power Station, Botswana. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social, air quality, noise impact studies and public consultation
- Project director for the EIA and Public Consultation Process for the 260 km 765 kV transmission powerline between Hydra to Perseus substations (Northern Cape and Free State), the 13 km 765 kV transmission power line between Beta and Perseus substations and associated infrastructure. This study involved a detailed impact assessment with extensive public consultation and specialist investigations
- Project director for the EIA for the proposed reclamation and treatment of Gaborone (Botswana) wastewater for potable use. This study involved a number of specialist studies and extensive public consultation
- Team leader for the EIA, Public Consultation Process, EMP, Water Use Licensing Applications, General Authorisation for Water Use and the Department of Mineral and Energy Affairs Applications for the R10 billion Eskom Braamhoek Pumped Storage Scheme in the Drakensberg. The proposed scheme comprises two reservoirs, interconnected by enclosed tunnel systems, with pump turbine units with a potential generation capacity of approximately 1 333 MW
- Project director for the EIA and Public Consultation Process for the City of Johannesburg's flagship Strategic Public Transport Network R250 million project which aims to provide public transport priority measures for 300 km of road network in Johannesburg
- Project director for the EIA and Public Consultation Process for the upgrade to Staatsartillery Road in Pretoria West
- Project director for various residential housing development EIAs in the Tshwane Metropolitan Municipality and Ekurhuleni Metropolitan Municipality
- Project director for the EIA, EMP and Public Consultation Process for the proposed Selebi – Pikwe Water Master Plan, Botswana. The aim of this infrastructure development is to be able to meet the water needs of the rapidly expanding town of Selebi Pikwe
- Project director for the EIA and Public Consultation Process for the closure of Chloorkop Landfill site, Kempton Park
- Project director for the EIA and Public Consultation Process for the proposed generation expansion at Morupule Power Station (currently 118 MW), Botswana. The alternative of increasing power imported under a revised agreement with Eskom was evaluated. A number of specialist studies informed the EIA
- Project manager for the EIA of a proposed upgrade to the Blanco Boulevard, a major arterial road in George. This EIA has involved the evaluation of the archaeological, ecological, socio-economic, traffic, traffic noise, and the town and regional planning impacts of the proposed road link. This project has also entailed a public participation process
- Project manager for the EIA for the proposed Francistown Water Master Plan – Immediate Works, Botswana. The aim of this R250 million water infrastructure development is to be able to meet the development water needs of the rapidly expanding Francistown to year 2021. The project includes an EIA with extensive specialist studies and public participation

- Project manager for the EIA for the new restaurant complex at the Kirstenbosch National Botanical Gardens. The scoping report and EMP formed part of the National Botanical Institute's application for a permit to build within the Cape Peninsula Protected Natural Environment
- Project manager for the environmental studies undertaken at Fisantekraal Industrial Estate, Durbanville. This involved the undertaking of an EIA (including specialist studies) development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project manager on the EIA for the proposed upgrade of the Rooisand Nature Reserve, within the Kogelberg Biosphere, Kleinmond. This project included the facilitation of the public participation process, specialist engineering, hydrogeological, archaeological and botanical studies, the development of an EMP for both the construction and operational phases and input into an opportunities and constraints plan
- Project manager for the environmental services undertaken for Helderberg Reservoirs (8, 5, 3 and 2 Mℓ), Somerset West. This involved the undertaking of an EIA (including public facilitation) development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project Scientist for the EIA of the Waste-tech Vissershok Uitspan hazardous waste disposal site at Vissershok, 24 km north of Cape Town. This project involved the evaluation of the biological, physical, air quality, health, social and economic impacts of the location of two hazardous waste sites at Vissershok. In addition, two extensive public participation processes were undertaken as part of the EIA studies. The EIA studies were undertaken in fulfilment of the Minimum Requirements for Waste Disposal by Landfill published by the Department of Water Affairs and Forestry in 1994
- Project scientist for the EIA of a proposed road link between the Outeniqua Pass the National Road 2 (N2) near George. This project entails a road link to the Outeniqua Pass and N2 that will relieve the increasing traffic pressure on the road network of central George. This EIA has involved the evaluation of the archaeological, agricultural, ecological, socio-economic, traffic, traffic noise, and the town and regional planning impacts of the proposed road link. This project has also entailed a public participation process
- Project Scientist for the EIA of the location of the National Road 2 bypassing Knysna. The Department of Transport required an EIA to assess the impacts of a bypass road on Knysna. A number of alternative routes were investigated during the course of this project. Public participation was required to obtain the views of the I&APs along the proposed route
- Project scientist for the \$2 billion Maputo Iron and Steel EIA. The Industrial Development Corporation of SA (IDC) proposed to construct an iron and steel plant in Maputo, Mozambique, using iron ore stockpiled in Phalaborwa, South Africa. The iron ore (6 million tonnes) would be transported via rail or pipeline from Phalaborwa to Maputo. The iron and steel plant would produce direct reduced iron and steel slab (approximately 3.5 million tonnes). ARCUS GIBB undertook the EIA for this project
- Project scientist for the Preliminary EIA of alternative locations (Phalaborwa and Maputo) for an iron and steel plant and routes for a proposed slurry pipeline. An international consortium commissioned a study to investigate the feasibility of an iron ore mill in South Africa. ARCUS GIBB was commissioned to investigate the environmental feasibility of this large-scale industrial project

Environmental Management Plans (EMP)

- Project director for the compilation of an Environmental Management Plan (EMP) for the construction and operational phases of the Perseus-Gamma, and Hydra-Gamma 765 kV transmission power lines, extension to the Hydra Substation, turn-ins of the Beta-Hydra 765 kV transmission power line to Perseus and upgrading of the Perseus Substation
- Project manager for the Generic Environmental Management Programme for Johannesburg City Parks (JCP). The Generic EMP was developed as a tool for managing the activities of all contractors employed to undertake construction work in the Public Open Spaces within the jurisdiction of the JCP
- Project manager for the Alien Vegetation Management Programme for the implementation of the Working for Water Programme (WWP) for the 300 ha Knysna River catchment. This included the generation of plans from data collected using a helicopter-borne Global Positioning System (GPS) as well as from interested and affected parties, and processed using the Arcinfo/ArcView range of GIS software, provision of recommendations on the time needed to clear the existing infestations and undertake follow-up clearing and setting of measurable goals and indicators against which the success in achieving the objectives of the WWP can be measured
- Project manager for the EMP for the proposed Neptune Interchange Coega Industrial Development Zone (IDZ) in Port Elizabeth. This R1.4 million project will provide the Port Elizabeth area with new industrial opportunities. This project involved the development and implementation of an EMP for the Neptune Interchange contract and Environmental Management Programme (EMPR) for borrow areas for the entire IDZ
- Project manager for the EMP for the proposed construction of Trunk Road 1/1, between George and the Outeniqua Pass. This project involved the upgrading and widening of the 20 km mountain pass, which required environmental input during both the design and construction phases. The appointment included an EMP for the construction phase of the project
- Project manager for the EMP for Thesen Island remediation, Knysna. This R10 million project includes the investigation and remediation of a timber processing plant including creosote and CCA contaminated land. This management involved the development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project scientist for the EMP for Chapman's Peak Drive, Cape Peninsula. The Provincial Administration of the Western Cape commissioned ARCUS GIBB to develop an EMP for the rehabilitation of the Chapman's Peak Drive
- Project scientist and rehabilitation specialist for the EMP for the Armaments Testing Facility at Rooiels. Somchem (Pty) Ltd commissioned ARCUS GIBB to compile and implement an EMP for decommissioning soil remediation, rehabilitation, revegetation and long term monitoring of 11 ha armaments testing facility in the Kogelberg Biosphere Reserve
- Project scientist for the EMP for the Table Mountain Aerial Cableway upgrade, Cape Town. The National Parks Board commissioned ARCUS GIBB to compile an EMP for the construction and operational phase of the R60 million upgrade of the cableway on this internationally renowned landmark. This management plan involved the compilation of environmental specifications to control the activities of the contractor and his staff, thus preventing unnecessary damage to the environment during the construction and operational phase of the project

Integrated Development Planning (IDP)

- Project manager for the compilation of an Integrated Development Plan (IDP) for the Buffalo City Municipality, Eastern Cape. This R2.5 million involved the formulation of issues, strategies, projects and budgets for the next five years through consultation with stakeholders in six Municipal Directorates

Botanical Studies/Rehabilitation Programmes**Succulent Karoo Biome:**

- Project manager for the botanical study for the R250 million Industrial Development Corporation Silicon Metal Project. The project comprised specialist botanical input, GIS mapping and development of an EMP for prospecting that was incorporated into the feasibility study for the establishment of a silicon mine and metal smelter and the prospecting permit application for the proposed mine
- Project manager on specialist environmental input for proposed prospecting and mining by Namakwa Diamond Company (NDC). This project included the provision of specialist botanical input into the Environmental Management Programme Report (EMPR) and Environmental Impact Assessment (EIA) for prospecting and mining of a concession area (2 km wide and 30 km long directly adjacent to the Admiralty Strip) between the Olifants River Mouth and the Namaqua Sands Mine on the West Coast near Lutzville
- Project manager for the specialist environmental input for proposed prospecting and mining Trans Hex. This project included a botanical specialist and rehabilitation study of their surf-zone and Admiralty Strip mining concessions, located between Jakkalshok and Dorningbaai along the Cape West Coast. Phase 1 of the study will comprise a broad vegetation assessment and mapping of the concession area and development of a rehabilitation programme, while Phase 2 will comprise area specific vegetation surveys of the proposed areas to be mined

Fynbos Biome:

- Project manager for the specialist botanical study for the proposed development of a regional landfill facility on the Karweyderskraal site, near Hermanus. The proposed site is approximately 100 ha in size. The aim of this specialist study was to survey the site and assess the potential effects of the proposed landfill would have on the flora present on site
- Project manager for the specialist botanical study for the proposed development of social housing at Meerlust Bosbou. The Winelands District Council initiated this development in order to provide social housing for 422 families
- Project manager for the specialist botanical study of the Cape International Airport (CIA) site for the Airports Company of South Africa. This project involves the extension of the existing CIA northwards to cover the entire 350 ha site within the next 35 to 50 years. The environmental input will be incorporated into the planning phase of the proposed developments at CIA and as baseline information for the environmental management system for CIA
- Project manager for the specialist botanical study for the proposed extension of the Zandvliet or Macassar Wastewater Treatment Works and associated infrastructure. The proposed extensions are required to meet the present and future wastewater capacity problems experienced in the Cape Metropolitan Area. Potential impacts of development and recommendations for their mitigation were made

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Environmental

- Project manager for the specialist botanical study for Phases 1 - 3 of the proposed Blaauwberg City development, potential of development and recommendations for their mitigation were made. A Global Positioning System (GPS) was used to map remnant vegetation
- Project manager for the specialist botanical study for phase 7 of the existing Sunset Beach residential development. This project involves the extension of Sunset Beach northwards and comprises the final phase of the Milnerton Estate's developments, potential environmental impacts of development and recommendations for their mitigation were made

Environmental Audits

- Project director for compliance audits of Eskom's Gourikwa and Atlantis Gas Turbine Power Stations
- Project director for a due-diligence audits of a number of bottling facilities for an international client
- Project director for waste management audits of the Linbro and Marie-Louise waste sites, Johannesburg
- Project manager for the environmental audit for the operation of the Table Mountain Cableway (TMC). The Table Mountain Aerial Cableway Company (TMACC) developed an environmental management system (EMS) for the operation of TMC in accordance with the requirements of ISO 140001. ARCUS GIBB were appointed to undertake an external audit. The audit aimed to assess the current status of the EMS for the operation of the TMC and recommend improvement opportunities based on TMACC's EMS

Other Studies

- Project director for the Water Use Authorisation process for identified Water Uses at the Portland Cement Company's Jupiter Cement Plant in terms of the National Water Act
- Project director and manager for the 5-year Strategic Plan for the Department of Water Affairs and Forestry Chief Directorate: Water Resources and Information Management
- Head of ARCUS GIBB's corporate strategy implementation team which is responsible for the overall implementation of ARCUS GIBB's 5-year Corporate Strategy both at Company and business unit level
- Project manager for the corporatisation of the National SMME Fishing Forum. The National SMME Fishing Forum was established in 1999 to represent small, medium and micro entities, defend their interests and rights, as well as promote their development and participation within the industry. ARCUS GIBB were appointed by the Forum to assist with the corporatisation of the organisation in order to maximise on investment and development opportunities that are currently available
- Project manager and institutional advisor on the identification of three candidate sites within each of the 20 identified 'search centres' in or around the Cape Metropolitan Area and the environmental audits preparation of 'site acquisition reports' for Ericsson

Oct 1995 to
Feb 1997

University of Cape Town (Institute for Plant Conservation) - Consultant

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Environmental

Responsible for the planning and execution of specialist vegetation studies in ecologically sensitive areas. Key projects include:

- Developing guidelines for sustainable harvesting of thatching reed
- Environmental assessment of a ecologically rich site on the Southern Cape Coast due to be rezoned and subdivided
- Specialist input relating to the impacts on vegetation within the sites affected by:
 - The upgrades to the Table Mountain aerial cableway system
 - A large entertainment complex on the Cape Peninsula
 - A residential development along the sensitive Cape Peninsula coastline
 - A housing development in the Tygerberg area
 - Three proposed Olympic competition venues in the Cape Peninsula
 - A large multi-purpose community facility in the Cape Peninsula
 - A road upgrade in the Cape Peninsula, and
 - A development corridor in the Cape Peninsula
- Specialist input relating to the management of vegetation within:
 - A sensitive wetland area surrounded by a large entertainment/office park
 - Private nature reserves and
 - A natural area managed for provision of water resources
- Botanical surveys of:
 - A large river catchment area in the Western Cape and
 - A community parkland in the Cape Peninsula

Jan 1992 to
Sept 1995

University of Cape Town (Department of Botany) - Post-Graduate Student

Completed Masters degree in Botany (Ecology), and was involved in practical classes for undergraduate students and supervision of project assistants

Professional and other Affiliations

Committee member (1997 to 2003) and member (2003 to present), International Association for Impact Assessment

Member, Environment Sub-Committee, Cape Peninsula Protected Natural Environment Sub-committee and General Committee (Portfolio – Environment), Mountain Club of South Africa, 1997 - 2003

Member, Botanical Society of South Africa, 1996 to present

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Fair
Spanish	Basic	Basic	Basic

Signature

Date

26/09/08

CURRICULUM VITAE

Company	ARCUS GIBB
Name	Sanusha GOVENDER
Nationality	South African
Date of Birth	21.12.1982
Profession	Environmental Scientist
Position	Environmental Scientist
Start date with ARCUS GIBB	2007 – Contracted to DEADP 2008 – Permanent full-time staff member

Key experience

Environmental scientist with two years of experience, Sanusha specialises in managing environmental processes and the review of Environmental applications in terms of the Environment Conservation Act (No. 73 of 1989) [ECA].

Her key experience includes:

- **Project management**
 - **Conducting site visits and liaising with Environmental Assessment Practitioners and applicants to guide the environmental procedures and processes**
 - **Analysing applications and drafting Records of Decision**
 - **Processing applications in terms of Section 24(g) of the National Environmental Management Act (No. 107 of 1998) [NEMA]**
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Qualifications

Bachelor of Science (Environment & Development) : University of KwaZulu-Natal, 2005

Training Courses with ARCUS GIBB (3 weeks):

- Environmental Legislation (NEMA and ECA)
 - Biodiversity
 - Bulk Water Supply
 - General Construction and Governmental Structures and Procedures
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Career summary

4 March 2008 to date **ARCUS GIBB** – Junior Environmental Scientist

May 2007 to 3 March 2008 **ARCUS GIBB** – Junior Environmental Scientist (Contract)

Contracted to the Western Cape Department of Environmental Affairs and Development Planning (DEAD&P)

Function was to analyse and assess the backlog of EIA applications for DEAD&P in terms of the Environment Conservation Act (No. 73 of 1989)

2006 to 2007 **Pravin Amar Development Planners, Durban** – Environmental Officer

Primary function was project assistance and management.

Projects included:

- Environmental Assessment of Point Durban Small Craft Harbour
- Marianridge Office Park Development

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent

Signature

Date

CURRICULUM VITAE

Company Name	ARCUS GIBB
Nationality	Russell STOW South African
Date of Birth	05.11.1975
Profession	Environmental Scientist
Position	Associate Environmental Scientist
Specialisation	Environmental Impact Assessments (EIAs), Estuarine, Coastal and Intertidal Assessments and Management Systems, Environmental Planning; Environmental Sensitivity Mapping; Environmental Constraint Analysis; Environmental Management Plans (EMPs); Environmental Auditing; Public Involvement Processes; SASS5 Riverine Health Assessments and Management
Start date with ARCUS GIBB	2007 – Permanent full-time staff member

Key experience

A senior environmental scientist with seven years of experience, Russell Stow specialises in a wide-range of environmentally related projects, processes and applications for private, commercial and industrial clients, in addition to local, provincial and national government departments and municipalities.

His key experience includes:

- **Environmental impact assessment (EIA)** of small, medium and large-scale infrastructure projects, including public participation processes
- **Environmental management programmes (EMP)** for the construction and operational phases of infrastructure developments
- **Environmental sensitivity and land-use suitability** using Geographic Information Systems (GIS) for planning and co-ordinating proposed developments and conceptual projects.
- **Environmental Management Plans** for small, medium and large-scale infrastructure projects focussed on ensuring construction and operational environmental impacts are accurately defined and appropriately mitigated.
- **Environmental Auditing** for small, medium and large-scale infrastructure projects measuring non-compliances against the conditions of the granted authorisations.
- **Surface and Groundwater Water Monitoring** at large industrial sites comprising site assessment and sample collection for laboratory analysis.
- **Catchment Management Strategy Design** for the management of resources and the planning of infrastructural developments within catchments in the eThekweni Municipality jurisdiction.
- **Basic Geographic Information Systems (GIS)** use in EIAs and environmental planning projects as a tool to manipulate data and interpret project impact limitations and possible planning design scenarios.
- **Environmental Sensitivity Studies** as an environmental planning tool for planning and co-ordinating proposed developments and conceptual projects.

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Qualifications

Bachelor of Science (Environmental Biology) (Honours) : University of Natal, Durban, 1998

Bachelor of Science (Biology and Environmental Management) : University of Natal, Durban, 1997

Master of Science (Zoology) : Rhodes University, Grahamstown (not completed)

Short Course on SASS5 - Riverine Health Assessment

Professional Member of the South African Council for Natural Scientists, 2007

PriSciNat No : 400089/07

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Career summary

- Sept 2007 to date **ARCUS GIBB** – Environmental Scientist, Associate
- Feb 2001 to Aug 2007 **SRK Consulting** – Senior Environmental Scientist
- Jan 1998 to Jan 2001 **Envirocheck cc (Kantey & TEMPLER Consulting Engineers)** – Environmental Scientist (Part time)

Environmental Impact Assessment

Projects include:

- Environmental assessment practitioner for EIAs for the Petroleum Industry (>25) : Construction of new retail service stations and commercial installations and the upgrade of existing sites in the KwaZulu-Natal, Gauteng and the Eastern Cape provinces for Shell (Pty) Ltd, Total (Pty) Ltd, Caltex (Pty) Ltd and Sasol Oil (Pty) Ltd.
- Environmental assessment practitioner for uThungulu District Municipality's Regional Community Projects EIAs for a variety of development projects including the construction of roads, community facilities and water supply projects.

Duties included:

- Project management
 - Environmental scoping
 - Public involvement
 - Impact assessment
 - Report writing
 - Spill contingency plans
 - EMPs
- Environmental assessment practitioner for the EIA for the upgrading of the NCP Alcohols Plant involving the decommissioning of the phthalates and mining chemicals processes and expansion and modifications to the alcohol production facility and associated processes and facilities such as fuel and final product storage, wastewater treatment and discharge and stormwater management system.

Duties include:

- Scoping
- Impact assessment
- Report writing
- Public involvement

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- Environmental assessment practitioner for the initial environmental evaluation of the proposed expansion of the Simunye Sugar Estate Distillery and relocation of the Stillage/Fertiliser Blending Plant. The project included the upgrading and expansion of the existing distillery adjacent to the Simunye Sugar Mill (Mill) to increase the production of ethanol to 30 million litres per annum for both the local and international market, and relocation of the stillage/fertiliser blending plant. The existing effluent plant will be modified to include construction of a wetland consisting of series of stabilising ponds to improve polishing of the final effluent for irrigation.

Duties included:

- Initial Environmental Evaluation
 - Public involvement
 - Impact assessment
 - Comprehensive EMP
- Public liaison officer for the EIA for the upgrading of the Mondi Kraft Plant in Richard Bay to increase production of bleached hardwood paper pulp and white top linerboard through optimisation of the existing site infrastructure with installation of new bleaching plant and digester.

Duties included:

- Public involvement
 - Communication
- Environmental Assessment Practitioner for the EIA for a proposed Earthfill Embankment across a Wetland in Richards Bay, KwaZulu-Natal to provide road access to individuals residing in approximately 50 households within the Mzingazi Village. The embankment would also carry water and sanitation services via pipelines built into the embankment to the households.

Duties included:

- Ecological research and review, scoping
- Environmental assessment practitioner for the EIA for the construction of a private Hot Metal Link Road between BHP Billiton's Hillside and Bayside Aluminium Smelters.

Duties included:

- Project management
 - Scoping
 - Public involvement
 - Environmental impact assessment
 - EMP
- Environmental assessment practitioner for the EIA for the development of the KwaBulawayo Tourism centre by the uThungulu District Municipality on the historical site of the King Shaka's original Royal Town, Bhekeshowe, KwaZulu-Natal with the intention of combining tourism of historical sites with development, in order to draw local, provincial, national and international tourists to the Bhekeshowe area, thereby promoting local economic development.

R STOW CV SHEET 5

Duties included:

- Project management
- Scoping
- Public involvement
- Impact assessment
- EMP

- Environmental Services for the construction of the Trashtrap on the Mhlatuzana River, Durban, KwaZulu-Natal.

Duty included:

- EMP compilation
- Construction auditing

- Environmental advisor and researcher into the potential environmental impacts of the proposed discharge of additional effluent from the Municipal Treatment Works into the Ohlanga River on the ecology of the Ohlanga Estuary.

Duty included:

- Information research and review

- Environmental assessment practitioner for the EIA for the identification of a suitable site for the development and permitting of a new landfill site for the Impendle Municipality, Impendle, KwaZulu-Natal.
- Environmental assessment practitioner for the EIA exemption for the proposed construction of a new 16 000 ton/year Caustic Sodium Aluminate Production Facility as part of the existing CI compound, adjacent to the aluminium sulphate plant, at Chemical Initiatives (Pty) Ltd, Umbogintwini Industrial Complex, Durban.

Duties included:

- Project management
- Scoping
- Public involvement
- Impact assessment
- EMP

- Environmental assessment practitioner for the EIA exemption for the construction of a Caustic Soda Production Facility to produce and store to 40 000 tons per year of 50% caustic soda solution (ie 20 000 tons of solid sodium hydroxide used per year) for supply Tioxide and international export.

Duties included:

- Scoping
- Public involvement
- Impact assessment

- Environmental assessment practitioner for the EIA for the Upgrading of Isegen Industrial Plant, Sapref Park, Isipingo, Durban. Isegen (Pty) Ltd who proposed eliminating the use of benzene in the Maleic Anhydride (MA Manufacturing Facility) and increasing MA production by constructing and operating a second 12 000 tpa butane-based MA manufacturing facility (MA3) and upgrading the current benzene-based MA manufacturing facility to utilise butane, increasing capacity by 13 000 tpa.

R STOW CV SHEET 6

Duties included:

- Project management
 - Scoping
 - Public involvement
 - Impact assessment
 - Spill contingency plans
 - EMPs
- Environmental assessment practitioner for the EIA for the installation and operation of a gas-fired boiler and conversion of the dryer system from LP gas to Sasol gas at Defy Appliances Ltd, Jacobs, Durban, KwaZulu-Natal. Defy propose replacing the electrical heating elements with gas-fired steam boiler system operating on methane rich Sasol gas located adjacent to the factory workshop and in close proximity to the gas station which the connection point to the existing Sasol gas network.

Duties included:

- Scoping
 - Public involvement
 - Impact assessment
 - Spill contingency plans
 - EMPs
- Environmental assessment practitioner for the EIA for the Treatment and Disposal of Mercury Waste and Decontamination of the Thor Chemicals Site with the intention to initiate and implement corrective action to resolve the long-term concerns associated with the storage of the mercury containing wastes and materials and contamination of the site. In essence, this involves defining and quantifying the wastes and materials on the site, identifying a suitable treatment and disposal method, and supervising the cleanup process.

Duties included:

- Scoping
 - Public involvement
 - Impact assessment
 - Spill contingency plans
 - EMPs
- Environmental assessment practitioner for the EIA for the proposed extension of the Lake District Housing Estate, Gillits, Durban to include 19 additional units, all associated infrastructure and a causeway across a wetland.

Duties included:

- Project management
 - Scoping
 - Client liaison
 - Technical review
 - Impact assessment
 - EMPs
- Environmental assessment practitioner for the EIA for the Construction of a Sheet Metal Treatment Plant for Safal Steel (Pty) Ltd in Cato Ridge, Durban in which raw sheet metal is treated, processed and painted to produce roof sheeting for use in large industrial warehouses. The facility would produce 130 000 tonnes of processed sheets per annum.

R STOW CV SHEET 7

Duties included:

- Project management
- Scoping
- Public involvement
- Impact assessment

Environmental Management Plans

- Environmental assessment practitioner for compilation of the Environmental Management Programme for the New Diamond Corporation Diamond to comply with the requirements of applying for a permit to prospect for Diamonds along the Orange River north of Kimberly, Northern Province.

Duties included:

- Ecological review and research
 - Impact assessment
 - Reporting
- Environmental assessment practitioner for the compilation of an Environmental Management Plan for the proposed development of a conference centre comprising a main hall and smaller seminar rooms at the Lily Lodge Resort in the sand dunes of 2nd Beach, Port St. John's, Eastern Cape.

Duties included:

- Site assessor
 - EMP
- Environmental assessment practitioner for the compilation of an Environmental Management Plan (EMP) for the proposed operation of the new Newchem Paint Manufacturing Plant in conjunction with the Technipaint Distribution Warehouse, Jacobs.

Duties included:

- Spill contingency plans
- EMPs

Monitoring

- Environmental assessment practitioner for the monitoring of surface water quality at the DOW Canelands Manufacturing plant as part of DOW's routine surface water quality monitoring program that is conducted on a bi-annual basis, the primary purpose of which is to enable site staff to monitor and manage impacts from the on-site activities on the surface water drainage system at on and off-site locations.

Duties included:

- Sample collection and measurements
- Monitoring

R STOW CV SHEET 8

- Environmental assessment practitioner to undertake a baseline dust fall-out monitoring study for Portnet at the dry bulk terminal (DBT) in the Richards Bay harbour to establish an estimate of the dust fall-out status for the current site conditions and anticipated off-site areas of impact for parameters related to the current activities on the site and use the results to plan for long term monitoring and air quality management at the site.

Duties included:

- Equipment placement
- Sample collection

Strategic and GIS-based Projects

- Environmental assessment practitioner for the compilation of a GIS internet-based interactive electronic inventory to provide the Department of Agriculture and Environmental Affairs (DAEA) with details of the current status of all solid waste sites in KwaZulu-Natal (KZN) through a preparation and distribution of a questionnaire, capture and data analysis, generation of a electronic interactive map (linked to captured data), and training of DAEA Staff on the use and management of the electronic inventory.

Duties included:

- Research and site visits
- Data collection
- Database compilation
- Data analysis

- Environmental consultant and advisor to the eThekweni Municipality Drainage and Coastal Department for the development of a guideline for catchment planning within the eThekweni Municipality with emphasis on strategic considerations and environmental management.
- Environmental assessment practitioner for the Environmental Sensitivity Mapping Study for the proposed development of a Housing Estate on the Richards Bay Country Club Golf Course, Richards Bay, KwaZulu-Natal. The project was essentially a Geographic Information System (GIS)-based mapping exercise which focussed on biophysical and ecological aspects to determine environmentally suitable areas of the Richards Bay Country Club for the potential development of a housing estate. 2004

Duties included:

- GIS mapping
- Site assessment
- Data analysis
- Presentation compilation

- Environmental analyst for the Crime Prevention Through Environmental Design Project. Phase 1: Open Space Identification and Auditing, Richards Bay, KwaZulu-Natal. The study aimed to identify and audit all the zoned open spaces within the uMhlathuze Municipality in order to categorise them in relation to crime potential by their environmental value (Ecological and biodiversity), social value and development value.

R STOW CV SHEET 9

Duties included:

- Project co-ordinator
- GIS
- Data analysis
- Report compilation

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

Signature

Date

CURRICULUM VITAE

Company	ARCUS GIBB
Name	Rashieda DAVIDS (nee THOMAS)
Nationality	South African
Date of birth	06.01.1983
Profession	Environmental Management Consultant
Position	Environmental Scientist
Specialisation	Integrated environmental management
Start date with ARCUS GIBB	2007 – Permanent full-time staff member

Key experience

Rashieda Davids has three years experience in various environmental disciplines.

Her key experience includes:

- **Integrated environmental management studies for the establishment, operation and auditing** of general waste infrastructure, mixed use developments and linear infrastructure
 - **Environmental impact assessment (EIA)** of small, medium and large-scale infrastructure projects, including public participation processes
 - **Environmental management programmes (EMP)** for the construction and operational phases of infrastructure developments
 - **Strategic Environmental Management such as Strategic Environmental Assessments**
-

Qualifications

Bachelor of Science (Environmental, Geographical Science, Ocean & Atmosphere Science) : University of Cape Town, 2004

Bachelor of Science (Honours) (Environmental & Geographical Science) : University of Cape Town, 2005

R DAVIDS C V SHEET 2

Career summary

June 2007 to
date

ARCUS GIBB – Environmental Scientist

Projects include:

Environmental Impact Assessments (EIAs)

- Project scientist for the EIA and EMP for the proposed construction of a conventional nuclear power station and associated infrastructure in the Western Cape. The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes the screening and selection of a suitable site for the nuclear plant, as well as a scoping process and detailed environmental impact assessment. The project includes 20 detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies, ongoing
- Project scientist for the EIA and EMP for the proposed construction of the Pebble Bed Modular Reactor and associated infrastructure in the Western Cape. The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies, ongoing
- Project scientist for the EIA and EMP for the proposed upgrade of the Sani Pass (P318), Drakensberg. The KZN Department of transport in association with the National Department of Transport are the project proponents. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social and biophysical, EIA process and public consultation, ongoing
- Project scientist for the EIA for the proposed construction of a Substation in the Umgeni Business Park, Durban. The project proponent is eThekweni Electricity. The EIA includes a detailed environmental impact assessment, ongoing

Environmental Management Plans (EMP)

- Project scientist for the compilation of a Construction Environmental Management Plan (CEMP) for the construction and operational phases of the Gamma Perseus 765 kV power line
- Project scientist for the compilation of an Operational Environmental Management Plan (OEMP) for the construction and operational phases of the Gamma Perseus 765 kV power line
- Project scientist for the development of an Integrated Management Plan (IMP) for the Krantzklouf Nature Reserve, KwaZulu-Natal. The project proponent is Ezemvelo KZN Wildlife.
- Project scientist for the development of an Integrated Management Plan (IMP) for the Chelmsford Nature Reserve, KwaZulu-Natal. The project proponent is Ezemvelo KZN Wildlife.
- Project scientist for the development of an Integrated Management Plan (IMP) for the Ncandu Nature Reserve, KwaZulu-Natal. The project proponent is Ezemvelo KZN Wildlife.

R DAVIDS C V SHEET 3

- Project scientist for the compilation of a Construction Environmental Management Plan (CEMP) for the construction and operational phases of a Substation in the Umgeni Business Park, Durban. The project proponent is eThekweni Electricity. The EIA includes a detailed environmental impact assessment, ongoing

Nov 2005 to
May 2007

The Environmental Partnership – Junior Environmental Practitioner

Strategic Environmental Assessments (SEAs)

- Project scientist for the Environmental Strategic Study of the Klipfontein Corridor Public Transport System in Cape Town. The study considers the environmental attributes of the study area and suggests an environmental planning framework specific to the needs of Cape Town in terms of a public transport system, 2005 - 2006
- Project scientist for the Environmental Framework Plan of the Klipfontein Corridor Public Transport System in Cape Town. The study assesses the design, infrastructure and planning proposals for the public transport system against the environmental, social and economic aspects of the study area, 2006

Environmental Impact Assessments (EIAs)

- Project scientist Environmental Impact Assessment for the proposed 2010 World Cup Stadium and Associated Infrastructure in Cape Town. The project proponent was the City of Cape Town. The EIA included a detailed environmental impact assessment process with extensive public participation. A number of specialist studies informed the assessment, including social, economic, noise, archaeological, heritage, visual and transport, 2006
- Project scientist for an Environmental Impact Assessment of an existing landfill site in Vissershok, Cape Town. The project included extensive public participation, 2006
- Project scientist for an Environmental Impact Assessment of a proposed Eco Village/Sustainable Neighbourhood in Oude Molen, Cape Town. The project undertakes to sustainable energy and waste initiatives in line with the latest technology, 2007 - ongoing
- Project scientist for a Basic Environmental Assessment of repair work to potato factory wall in Lamberts Bay Harbour
- Project scientist for a Basic Environmental Assessment of a housing project in Paarl, Cape Town, 2007 - ongoing

Environmental Management Plans (EMPs)

- Project scientist for an Environmental Management Plan for 2010 World Cup Stadium and Associated Infrastructure in Cape Town, 2006
- Project scientist for an Environmental Management Plan, Dreamworld Film City in Cape Town, 2007
- Project scientist for an Environmental Management Plan, Harbour Rock Apartments, Hout Bay, Cape Town, 2006

R DAVIDS C V SHEET 4

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Fair

Signature

Date

CURRICULUM VITAE

Company Name	ARCUS GIBB
Nationality	Gisela FECHTER South African
Date of Birth	13.09.1961
Profession	Chemical Engineer
Position	Associate - Environmental/Chemical Engineer
Specialisation	Environmental impact assessment, auditing, management systems, industrial and environmental engineering
Start date with ARCUS GIBB	2001 – Permanent full-time staff member

Key experience

A chemical engineer with 15 years of experience, Gisela Fechter specialises in environmental engineering, environmental assessments, environmental auditing and related projects. She was employed at ISCOR, ICI-UK and AECI before joining ARCUS GIBB's Environmental Division

Her key experience includes:

- **Environmental management and planning**, including development and application of systems, problem solving and interaction with various stakeholders on a project management basis and compilation of management plans
- **Environmental impact assessment**, including scoping studies, public participation and coordination of specialist studies for a variety of services infrastructure and housing developments
- **Environmental auditing**, including Due Diligence and Health Safety and Environment Compliance audits of various industrial facilities
- **Process engineering for various liquid effluent systems** including effluent treatment systems, effluent disposal to rivers and the ocean
- **Water system management and planning** including investigation of water management options at Iscor Steel Works in Pretoria and at Kelvin Power Station
- **Energy management engineering** for the planning, distribution and control of the various energy sources, various combustion gasses and steam at the Iscor Steel Works in Pretoria
- **Project management** for various environmental and water management projects on a client representative and consulting basis. Responsibilities included the development of technical scopes, planning and co-ordination of public participation, tendering, acquisition, technical evaluation and fiscal control.

G FECHTER C V SHEET 2

Qualifications

Bachelor of Science in Chemical Engineering : University of Pretoria, 1986
Member of the South African Institute of Chemical Engineers
Member of the Committee of the KwaZulu-Natal Waste Minimisation Interest Group

G FECHTER C V SHEET 3

Career summary

2006 to date **ARCUS GIBB** – Associate

Responsible for managing the environmental consulting services business at the Durban office and leading and undertaking environmental and related projects.

2001 to 2006 **ARCUS GIBB** - Environmental/Chemical Engineer

Responsible for leading the environmental services provided at the Durban Office and undertaking and/or leading projects associated with environmental engineering, environmental impact assessments, environmental management planning and monitoring, environmental audits and related projects.

1999 to 2000 **Umbogintwini Operation Service (UOS, AECl)** – Chemical Engineer on secondment from AECl Bioproducts

It should be noted that UOS acted as Landlord to the Umbogintwini Industrial Complex (hereafter referred to as 'the complex') and were responsible for various services to the complex, which include management and co-ordination of effluent and stormwater treatment and permit and environmental compliance auditing. Fifteen industrial companies operate in the complex.

Responsibilities included

- Engineering advise and support to the Management Team
- Various investigations and projects related to the development of specifications and principles for the management and operation of the UOS sea discharge pipeline to ensure minimisation of environmental impacts and permit compliance
- Preparation of the complex's liquid effluent disposal and permit compliance status reports and presenting these to DWAF, the Permit Advisory Panel, the local Community Awareness and Emergency Response (CAER) Committee and the South Coast Marine Pipeline Forum
- Regular compliance audits conducted on behalf of UOS at the industrial facilities in the complex to ensure good environmental performance (stormwater management compliance)

1997 to 1999 **AECl Bioproducts** – Process Engineer

Responsibilities included:

- Environmental management assistance including collation and presentation of reports, problem solving, definition of operating philosophy, setting of targets and environmental training
- Representing the organisation at sea outfall pipeline forums
- Process engineering and engineering management administration support for plant modifications
- Environmental engineering for the Lysine Plant Expansion Study

G FECHTER C V SHEET 4

- Undertaking investigations on wastewater discharge impacts such as potential toxicity and sea discolorations

1989 **ICI Middlesborough, UK** – Process Engineer

Responsibilities included assisting the project engineer with the specification of equipment and compiling datasheets for the Diesel Dewaxing Plant Project and undertaking a vapour cloud explosion study.

1988 to 1989 **ISCOR Pretoria Works** – Energy Management Engineer

Responsibilities included:

- Engineering and management support in the distribution and control of various energy sources and resources (excluding electricity) for the works. This included setting up distribution plans based on production plans and energy balances, preparation of the works energy reports, budgeting, problem identification and resolution and optimisation of the distribution networks
- Technical support regarding energy management and process engineering to other sections and projects for the Corex Plant project.
- Technical support to the operating teams of the steam and compressed air production plants
- Project management and engineering for a number of energy management and optimisation related projects

1987 **ISCOR Pretoria Works** – Acting Superintendent Environmental Affairs (temp three months)

Responsible for attending to and managing the section responsible for all Pretoria Works environmental affairs, industrial hygiene, water treatment and energy distribution (excluding electricity).

1985 to 1987 **ISCOR Pretoria Works** – Environmental Control and Water Utilisation Engineer (Engineer in Training)

Responsibilities included:

- Water and effluent management of the work's water and effluent system. This included overseeing the treatment, monitoring and control of the various internal water utilisation and effluents as well as final discharges, setting up an effluent database and report system, identification and reporting of weaknesses and non-compliance's, recommending of technical solutions and correspondence with DWAF regarding compliance status and incidents
- Water treatment and utilisation improvement and modifications projects, which included improvements to various cooling water and wastewater treatment systems and infrastructure
- Process engineering including e.g. the design of the cooling water supply pipeline link to the new Corex Plant
- Air pollution control assistance
- Technical assistance in industrial hygiene projects, e.g. ventilation system evaluation and design for overhead crane cabins

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Project experience

Key projects and associated responsibilities include:

Environmental Profiling

- Compilation of the SA National Chemicals Profile. Project scientist and task co-ordinator. Department of Environmental Affairs and Tourism, 2001 - 2006

Environmental Impact Assessments (EIA)

- Umgeni Business Park 132 kV / 11 kV substation EIA. Project leader. eThekweni Electricity (Municipality), 2008
- Inchanga Islamic Centre Farm Dam Basic Assessment. Project leader. Inchanga Islamic Trust, 2007 – 2008
- ACSA Radar Rd storm damage repairs project EIA exemption/emergency reports. Task leader. ACSA, 2007
- Remote ACSA car park at the Durban International Airport Basic Assessment and associated public participation. Project leader. ACSA, 2006
- Mophela Village 150-kilolitre elevated water tank EIA. Project leader. eThekweni Municipality, 2005
- Phoenix Wastewater Treatment Works 25 megalitre upgrade EIA. Project leader. eThekweni Municipality, 2004 - 2005
- Phase II of the Umgeni River widening project EIA. This project concerns a one kilometre section of the lower Umgeni river at the Umgeni Business Park. Project leader. eThekweni Municipality, 2005 - 2006
- Port of Durban entrance channel widening and deepening EIA. The proposed development includes constructing a new north pier, demolition of the existing north pier and associated facilities, replacement of the sub-aqueous tunnel and associated services, dredging for deepening and a diesel storage facility for construction purposes. Project leader and scientist. National Ports Authority, 2003 - 2004
- KwaHlathi low cost housing development Environmental Scoping Study. The project concerns the proposed development of 1000 low cost houses at KwaHlathi in KwaZulu-Natal. Project leader. Nhlangothi Development Services, 2004
- Maydon Wharf diesel storage facility at the Port of Durban EIA Exemption Application. Project leader. South African Ports Operation, 2004
- Ambrose Park services infrastructure development EIA. Ambrose Park is a 55 hectare site earmarked for warehousing and goods handling at the Port of Durban. The service infrastructure includes access roads, electricity supply, water supply, stormwater reticulation, canal raising and a diesel storage facility for construction purposes. Project leader and scientist. National Ports Authority, 2002 – 2004

G FECHTER C V SHEET 6

- Ottawa-Tongaat 132 kV overhead electricity transmission lines and associated substations EIA. This 14 km power line project includes a proposed substation at Tongaat and the proposed La Mercy Airport. The EIA included bird and heritage specialist studies for which appropriate specialists were appointed. Project leader and scientist. eThekweni Municipality, 2001 - 2005
- Effingham – Kwa-Mashu Link Road and Industrial Development detailed Noise Impact Assessment. Noise specialists were appointed. Project leader. eThekweni Municipality, 2001 - 2002
- Effingham – Kwa-Mashu Link Road Environmental Scoping Study. Task leader. eThekweni Municipality, 2001 - 2002

Environmental Planning

- Kranzkloof, Oribi Gorge, Umtamvuna, Chlemsford and Ncandu Nature Reserve Integrated Management Plans. Project scientist. Ezemvelo KwaZulu-Natal Wildlife, 2007 – current
- Braamhoek pump scheme borrow pit EMP. Assistance with mining permits re-application. Project scientist. Eskom, 2007
- Port of Durban Entrance Projects EMP review and rehabilitation specification. This was done with the assistance of a vegetation specialist. Project scientist. Transnet, 2007
- Port of Durban Service Tunnel Environmental Management Plan (EMP). Compilation of an EMP for the construction phase of the new 4.4m internal diameter 515 m long sub-aqueous tunnel and associated services at the Port of Durban entrance channel. Project leader and scientist. eThekweni Municipality, 2004
- Phase II Umgeni River widening project EMP and Department of Water Affairs & Forestry (DWAF) and Department of Minerals & Energy (DME) authorisation application. Project leader. eThekweni Municipality, 2006
- Phoenix Wastewater Treatment Works 25 megalitre upgrade EMP. Project leader & scientist. eThekweni Municipality, 2005
- Ambrose Park services infrastructure development EMP. Project leader. National Ports Authority, 2003
- Isipingo Island Institute Feasibility Business Plan. Project scientist and task co-ordinator. Isipingo Island Institute, 2002 - 2003

Environmental Monitoring and Control

- Gautrain Project environmental advisory services. These services were provided on an ad-hoc basis as per requests received from the client. Project scientist. Gauteng Department of Public Transport, Roads and Works, 2007 - 2008
- Port of Durban Service Tunnel Environmental Control Officer (ECO). ECO services and associated audits were provided for the two years construction phase of the new 4.4 m internal diameter 515 m long sub-aqueous tunnel and associated services at the Port of Durban entrance channel. Project leader and reviewer. eThekweni Municipality, 2005 - 2007

G FECHTER C V SHEET 7

- Ambrose Park service infrastructure development project ECO. ECO services and associated audits were provided for the one year construction phase. Project leader and reviewer. National Ports Authority, 2003 - 2005

Environmental Audits

- Durban Wastewater Recycling Facility environmental compliance audit. Project scientist. Rand Merchant Bank, 2005 - 2006
- Container handling and transportation depot environmental compliance audit. The facility is located in Kempton Park. Project scientist. Confidential, 2005
- Pharmaceuticals manufacturing facility environmental compliance audit for an international client. The facility is located in Kyalami, Johannesburg. Project leader and scientist. Confidential, 2004
- Specialised ceramic product manufacturing and carbon product manufacturing facilities environmental compliance audit for an international client. Two sites in Gauteng were audited on a biennial basis. Project leader and scientist. Confidential, 2003 – 2007
- Sisonke District Municipality low cost housing developments preliminary environmental site assessments. Three sites in different areas were assessed. Project scientist. Sisonke District Municipality, 2003
- Kelvin Power Station environmental compliance audits. This power station in Kempton Park, Johannesburg were audited on a biennial basis. Project scientist. Kelvin Power (Pty) Ltd, 2002 - 2004
- Durban Port Ambrose Dumpsite Phase I and II environmental site assessment. Project leader. National Ports Authority, 2002 – 2003
- Water bottling facility Phase I due diligence and groundwater pollution assessment. The facility is located in KwaZulu-Natal. Project scientist. Confidential, 2002
- Vehicle part manufacturers and coating facilities Health Safety and Environment (HSE) compliance audits. The facilities are located in Durban. Project scientist. Confidential, 2002
- Oil recycling and processing facilities HSE compliance audits. Eight facilities in Johannesburg, Cape Town, Durban, Pietermaritzburg and Lime Acres were audited on an annual basis. Project leader and scientist. Rose Foundation, 2001 – 2003
- Lead and metal processing facilities HSE audits for an international client. 11 facilities throughout South Africa. Project scientist. Confidential, 2001 - 2002
- Pietermaritzburg waste disposal facility Phase I environmental due diligence assessment. Project leader and scientist. Pietermaritzburg - Msunduzi Transitional Local Council, 2001
- Georgia Pacific-Resinkem Phase I environmental due diligence assessment. The manufacturing facility is located at Umbogintwini south of Durban. Project leader and scientist. Resinkem, 2001

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Integrated Water and Wastewater Management, Permitting, Investigations and Engineering

- Coedmore quarry phase 2 Londonspruit diversion authorisation applications. Project leader. Holcim (Pty) Ltd, 2007 – 2008
- Kelvin Power Station Exemption Condition Compliance Project. Preparation of a plan, engineering design, contracting and implementation for modifications and measures at the Kelvin Power Station to achieve compliance with intermediate targets of the Department of Water Affairs and Forestry Exemption Permit. This multimillion Rand project includes the implementation of a integrated water/effluent flow meter system, hazardous substance containment bunding, wastewater management system integration and upgrade and stormwater system upgrade (introduction of new conveyance channels and containment dams). Project leader and engineer. Kelvin Power (Pty) Ltd, 2005 – 2007 (project currently on hold)
- Kelvin Power Station Water Management Option Project. Identification and assessment of water management options for achieving compliance with the Department of Water Affairs and Forestry Exemption Permit for the Kelvin Power Station, which includes assessment for water use optimisation and treatment, zero discharge (including feasibility of desalination through reverse osmosis), stormwater management, groundwater pollution. Project leader and engineer. Kelvin Power (Pty) Ltd, 2003 - 2004
- Kelvin Power Station water management plan compilation. Project leader and engineer. Kelvin Power (Pty) Ltd, 2001 – 2004
- Umbogintwini Industrial Complex organic effluent treatment plant investigation. Investigate the need for an organic effluent treatment plant for the complex. The project required that the individual and cumulative affects and interests of all the companies at the complex were collated, co-ordinated, addressed and agreed. An independent consultant conducted the detailed technical investigation. Project leader. Umbogintwini Operation Services, 2001
- Umbogintwini Industrial Complex documented storm water management system for the complex. Project engineer. Umbogintwini Operation Services, 2001
- Umbogintwini Industrial Complex marine outfall human health risk assessment. Undertaking human health risk assessment on the effluents released by the two marine pipelines of the complex by development of specifications, leading the tender process and project management of a team of consultants on a client representative basis. Project leader. Umbogintwini Operation Services, 1998 - 2001
- Umbogintwini Industrial Complex sea discolouration investigation. The mechanism of sea discolouration's caused by the liquid effluents discharged from the complex into the ocean via two marine outfall pipelines were investigated. A vast number of variables characterising the individual companies' and cumulative effluents and sea conditions measured at the outlet were analysed and statistically evaluated. Project leader/scientist. AECI Bioproducts & Umbogintwini Operation Services, 1999 - 2001
- Corex Plant 500mm cooling water supply pipeline link design. This design formed part of the integration of this new plant into Iscor Pretoria Works. Project engineer. Iscor, 1987

G FECHTER C V SHEET 9

- Iscor Rod mill mechanical draft cooling tower specification and project management. A new cooling tower was required at the Rod Mill to replace a dilapidated and inefficient existing cooling tower. Project manager/engineer. Iscor, 1987.
- Iscor Pretoria Works final effluent treatment facility investigation and modification design. Engineering investigation and design for modification to the sand filter plant to improve the wastewater discharge quality of Iscor Pretoria Works. Project engineer. 1986

Energy Management

- Iscor Pretoria Works gas distribution system upgrade. Identification of the optimal positions for additional control valves in the main gas distribution network to achieve economic optimisation by improving online time of key production units. Project engineer. Iscor, 1988
- Iscor Pretoria Works Central Energy Centrum. Project management for a multidisciplinary team of engineers and technicians for the specification and design of a central energy centrum for the monitoring and control of all the work's energy and water distribution. Project leader. Iscor Pretoria Works 1988 – 1989

Hazard and Operability Studies

- Diesel Dewaxing Plant vapour cloud explosion risk assessment. The assessment included literature review, engineering calculations and making recommendations for appropriate mitigation measures as part of the design for the new Diesel Dewaxing Plant Project. Project engineer. ICI Middlesborough, UK, 1989

Language capability

	Speaking	Reading	Writing
English	Good	Good	Good
Afrikaans	Good	Good	Good
German	Good	Good	Good

Signature

Date

CURRICULUM VITAE

Company Name	ARCUS GIBB
Nationality	TARRYN HENSTRA South African
Date of birth	02.06.1984
Profession	Environmental Scientist
Position	Environmental Scientist
Specialisation	Environmental Impact Assessments (EIAs), Environmental Planning; Environmental Management Plans (EMPs); Environmental Auditing; Public Involvement Processes;
Start date with ARCUS GIBB	2008 – Permanent full-time staff member

Key experience

Tarryn Henstra has two years experience in various environmental disciplines.

Her key experience includes:

- **Integrated environmental management studies for the establishment, operation and auditing** of residential developments, mixed use developments and linear infrastructure
 - **Environmental Impact Assessment (EIA)** of small, medium and large-scale infrastructure projects, including public participation processes
 - **Environmental Management Programmes (EMP)** for the construction and operational phases of infrastructure developments
-

Qualifications

Bachelor of Science (Geographical Science)
Bachelor of Science (Honours) Geographical Science (Geography and Environmental Management)

T HENSTRA CV SHEET 2

Career summary

July 2008
To date

ARCUS GIBB – Environmental Scientist

Projects include:

Environmental Impact Assessments (EIAs)

- Project scientist for the EIA and EMP for the proposed upgrade of the Sani Pass (P318), Drakensberg. The KZN Department of Transport in association with the National Department of Transport are the project proponents. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social and biophysical, EIA process and public consultation, ongoing
- Project scientist for the EIA for the proposed construction of an electricity co-generation facility at Richards Bay Minerals. The EIA includes a detailed environmental impact assessment. The project includes specialist studies, EIA process and public consultation, ongoing
- Project scientist for the EIA for the proposed installation of a Coal Dryer at Richards Bay Minerals. The EIA includes a detailed environmental impact assessment. The project includes specialist studies, EIA process and public consultation, ongoing

Jan 2007 to
July 2008

KSEMS – Environmental Scientist

Projects included:

Environmental Impact Assessments (EIAs)

- Project scientist for the EIA for a proposed residential development in Ifafa. The project proponent was Amber Sunrise Properties. The EIA consisted of a scoping process and detailed environmental impact assessment and well as an EMP. The project includes detailed specialist studies, including botanical, wetland and heritage, EIA process and public consultation.
- Project scientist for the EIA for a proposed residential development in Langefontein. The project proponent was Tydev. The EIA consisted of a scoping process and detailed environmental impact assessment. The project includes detailed specialist studies, including botanical, wetland and heritage, EIA process and public consultation.
- Project scientist for the EIA for two proposed petrol filling stations in Durban. The project proponent was Silver Lake Trading. The EIA consisted of a scoping process and detailed environmental impact assessment. The project included an EIA process and public consultation.
- Project scientist for the EIA to investigate alternative rehabilitation methods for the Margate Pier. The project proponent was the Hibiscus Coast Municipality. The EIA consisted of a scoping process and detailed environmental impact assessment. The project included detailed specialist studies, including engineering reports and fish studies, EIA process and public consultation.
- Project scientist for the EIA for numerous Sasol Gas Pipelines. The EIA consisted

T HENSTRA CV SHEET 3

of a scoping process and detailed environmental impact assessment and well as EMP's.

- Project scientist for the EIA for a proposed solvent recovery tank in Plascon (Mobeni). The EIA consisted of a scoping process and detailed environmental impact assessment. The project also included public consultation.
- Project scientist for the EIA for the proposed re-grading of the KZ 282 and KZ 284 roads in Eshowe and Empangeni. The project proponent was the Department of Transport. The EIA consisted of a Basic Assessment. The project included EIA process and public consultation.
- Project scientist for the EIA for a proposed petrol filling station in Amanzimtoti for Vista Homes. The EIA consisted of a scoping process and detailed environmental impact assessment. The project included EIA process and public consultation.
- Project scientist for the EIA for a proposed taxi rank in Umzinyathi. The EIA consisted of a scoping process and detailed environmental impact assessment. The project included EIA process and public consultation.
- Project scientist for the EIA for the upgrading of a substation in Glenwood. The project proponent was eThekweni Electricity. The EIA consisted of a scoping process and detailed environmental impact assessment. The project includes EIA process and public consultation.
- Project scientist for the EIA for a proposed Eskom substation and associated feeder lines in the Midlands. The EIA consisted of a scoping process and detailed environmental impact assessment. The project includes EIA process and public consultation.

ISO 14001 Audits

- Auditor of systems and processes audits for Plascon (Mobeni, Luiperdsvlei and Epping), Revertex and Divfood

Construction Monitoring

- Auditor for Clifton Hill residential development, Arbour Town Shopping Mall and Business Park and Sasol Gas Pipelines

T HENSTRA CV SHEET 4

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Fair

Signature

Date

CURRICULUM VITAE

Company Name	Arcus GIBB
Nationality	Mervin John OLIVIER South African
Date of Birth	25.12.1969
Profession	Environmental Scientist
Position	Technical Director
Specialisation	Project management, safety, health, environmental, risk and quality auditing, environmental management systems, coastal zone management, environmental impact assessments, environmental management programmes, strategic environmental assessments and integrated waste management
Start date with Arcus GIBB	2004 - Permanent full-time staff member

Key experience

An environmental scientist with 17 years of experience Mervin Olivier specialises in and Integrated Environmental Management, Environmental Auditing, Integrated Waste Management, and Safety, Health and Risk Management. Mervin's experience has been diverse and varied, including aspects of industrial zone management, environmental management systems and coastal zone management.

His key experience includes:

- **Project management and co-ordination** of various projects
- **Environmental auditing**, Due Diligence, Health, Safety and Environmental Compliance and Environmental Management Systems Audits of various industrial facilities, construction and waste sites
- **Development and implementation of Environment Management Systems** in accordance with ISO 14001
- **Development and implementation of Environmental Management Systems** according with OHSAS 18001
- **Preparation of Environmental Impact Assessments and other environmental reports** in accordance with published guidelines
- **Facilitation and co-ordination of public participation processes** as integral parts of environmental studies
- **Permitting of waste facilities** including consultation with regulatory authorities
- **Co-ordination of environmental monitoring programmes**
- **Safety, health and environmental risk assessments**
- **Business development** through sourcing and preparation of proposals for environmental work and networking with potential clients
- **Development of alien vegetation monitoring programmes**

MJ OLIVIER C V SHEET 2

Qualifications

Master in Social Science (Cum Laude) (Geographical & Environmental Sciences) :
University of Natal, 1998
Bachelor of Science (Geology II) : University of Natal, 1992
Bachelor in Social Science (Honours) (Geographical & Environmental Sciences) :
University of Natal, 1991
Bachelor of Social Science (Geographical & Environmental Science, Psychology) :
University of Natal, 1990
Environmental Auditing Course : Aspects International, 2000
Integrating ISO 14001, ISO 9001, OHSAS 18001 and Auditing, 2002
Registered Member with the International Association for Impact Assessment of South
Africa
Registered Member of the Institute of Waste Management of South Africa
Associate Environmental Auditor with the Institute of Environmental Management and
Assessment (Registration in process)
SAQA Facilitator – completed SAQA accredited training course (SAQA certification in
progress)
SAQA Assessor – completed SAQA accredited training course (SAQA certification in
progress)

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Career summary

- Mar. 2007 to date **Arcus GIBB** – Technical Director, Environmental Services Divisional Manager, Eastern Region
- Oct. 2006 to Feb 2007 **Arcus GIBB** – Senior Associate, Environmental Services Divisional Manager, Eastern Region
- June 2004 to Sept 2006 **Arcus GIBB** – Associate, Environmental Services Operations Manager, East London
- 2001 to 2004 **East London Industrial Development Zone (Pty) Ltd** - Safety, Health, Environment and Quality Manager

Duties include:

- Management and implementation of Safety Health Environment Quality Management System
 - Development of policies, procedures, work instructions and guidelines for the ISO 14001 environmental management system (EMS)
 - Obtaining certification of EMS to ISO 14001
 - Development of policies, procedures, work instructions and guidelines for the OHSAS 18001 occupational, health and safety management system (OH&S)
 - Obtaining certification of OH&S management system to OHSAS 18001
 - Implementation of quality management system according to ISO 9001
 - Integrated various management systems
- Environmental Health and Safety Auditing of contractors on site
- Co-ordination of the development of information packages for tenants, contractors and SMME's
 - Development of a Construction Environmental Management Plan for contractors and SMMEs
 - Development of an Environmental Design Manual
 - Development of a Stormwater Guideline Manual
 - Development of a Tenant Review Procedure
 - Development of Legal Guidance notes for Tenants
 - Development of an Occupational, Health and Safety Specification for Contractors and SMME's
- Management of environmental monitoring programmes
 - Planning and implementation of an air quality monitoring programme
 - Planning and implementation a water quality monitoring programme
 - Development of a noise monitoring management plan
 - Development of an alien vegetation monitoring programme
- Safety, health and environmental monitoring of bulk infrastructure projects including transmission lines, roads, sewers, water reticulation, bridges and dams
- Preparation and management of SHEQ Departmental Budget

MJ OLIVIER C V SHEET 4

- Communication of SHEQ issues to stakeholders via newsletters annual reports, newspaper articles and public presentations
- Development of a SHE training programme for ELIDZ employees, contractors and SMME's
- Management of environmental impact assessment process for ELIDZ and tenants

June 1995 to
June 2001

University of Transkei - Lecturer Geography and Environmental Science

Duties included:

- Lectured in Geographical and Environmental Sciences
 - Industry and the environment
 - Soil and water pollution
 - Air pollution
 - Waste management
 - Biogeography
 - Environmental Auditing
 - Climatology and hydrology
 - Geomorphology and soil science

June 1998 to
Dec 1998

Rhodes University - Lecturer Geography and Environmental Science (Part Time)

Project experience

Key projects include:

Environmental, Risk, Health, Safety and Quality Auditing

- Lead consultant for Waste audit of a major food manufacturing company, May 2011
- Matimba Power Station EMS Audit. Auditor of a certification audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2010
- Ingula Construction Site: Hydroelectric Power Station EMS Audit : lead auditor of a second party audit of an ESKOM hydro-electric power station EMS according to ISO 14001:2004, 2010
- Generation Environmental Management EMS Audit : auditor of a second stage certification audit of the administrative Head Office of Generation Environmental Management Peaking Generation EMS, according to ISO 14001:2004, 2010
- Grootvlei Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2010
- Clean Industry Awards Audit : lead auditor of second party audits of Mercedes Benz, Airports Company of South Africa, Khanngela Hygiene, Waste Trade Company, Goodyear, Eveready and Merrifield, 2010
- Hendrina Power Station EMS Audit : auditor of a certification audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009

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- Generation Environmental Management EMS Audit : auditor of a first stage certification audit of the administrative Head Office of Generation Environmental Management Peaking Generation EMS, according to ISO 14001:2004, 2009
- Duvha Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Lethabo Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Koeberg Power Station EMS Audit : lead auditor of a second party audit of an ESKOM nuclear power station EMS according to ISO 14001:2004, 2009
- Ingula Construction Site: Hydroelectric Power Station EMS Audit : lead auditor of a second party audit of an ESKOM hydro-electric power station EMS according to ISO 14001:2004, 2009
- Camden Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Komati Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Majuba Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Kendal Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Tutuka Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Grootvlei Power Station EMS Audit : lead auditor of a second party audit of an ESKOM hydro-electric power station EMS according to ISO 14001:2004, 2009
- Kriel Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Matla Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Arnot Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Matimba Power Station EMS Audit : auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Lethabo Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2009
- Ankerlig Power Station EMS Audit : lead auditor of a second party audit of an ESKOM gas turbine plant power station EMS according to ISO 14001:2004, 2009
- Gaurikwa Power Station EMS Audit : lead auditor of a second party audit of an ESKOM gas turbine plant power station EMS according to ISO 14001:2004, 2009
- Koeberg Power Station EMS Audit : lead auditor of a second party audit of an ESKOM nuclear power station EMS according to ISO 14001:2004, 2008

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- Gariiep Power Station EMS Audit : lead auditor of a second party audit of an ESKOM hydro-electric power station EMS according to ISO 14001:2004, 2008
- Van der Kloof Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Port Rex Power Station EMS Audit : lead auditor of a second party audit of an ESKOM gas turbine plant power station EMS according to ISO 14001:2004, 2008
- Palmiet Power Station EMS Audit : lead auditor of a second party audit of an ESKOM hydro-electric power station EMS according to ISO 14001:2004, 2008
- Acacia Power Station EMS Audit : lead auditor of a second party audit of an ESKOM gas turbine plant power station EMS according to ISO 14001:2004, 2008
- Duvha Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Komati Power Station EMS Audit : auditor second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Majuba Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Kendal Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Hendrina Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Camden Power Station EMS Audit : auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Kriel Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Matla Power Station EMS Audit : auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Arnot Power Station EMS Audit : lead auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Drakensburg Peaking Power Station EMS Audit : lead auditor of a second party audit of an ESKOM hydro-electric power station EMS according to ISO 14001:2004, 2008
- Matimba Power Station EMS Audit : auditor of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Tutuka Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008
- Grootvlei Power Station EMS Audit : project reviewer of a second party audit of an ESKOM hydro-electric power station EMS according to ISO 14001:2004, 2008
- Lethabo Power Station EMS Audit : project reviewer of a second party audit of an ESKOM coal fired power station EMS according to ISO 14001:2004, 2008

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- Belville Peaking Head Office EMS Audit : lead auditor of a second party audit of the administrative Head Office of Peaking Generation EMS, according to ISO 14001:2004, 2008
- Generation Environmental Management EMS Audit : lead auditor of a second party audit of the administrative Head Office of Generation Environmental Management Peaking Generation EMS, according to ISO 14001:2004. 2008
- SHEQ Audit of Phumelela Drums : lead auditor for a SHEQ audit of the Reprocessing of Previously Certified Packaging in Southern Africa according to RCMASA audit protocol of SANS 10406:2008, 2008
- SHEQ Audit of Container Solutions : lead auditor for a SHEQ audit of the Reprocessing of Previously Certified Packaging in Southern Africa according to RCMASA audit protocol of SANS 10406:2008, 2008
- SHEQ Audit of Anchor Marketing SA : lead auditor for a SHEQ audit of the Reprocessing of Previously Certified Packaging in Southern Africa according to RCMASA audit protocol of SANS 10406:2008, 2008
- Environmental Due Diligence Audit : lead auditor and project reviewer of a phase 1 Due Diligence Audit for a tannery, 2007
- BCM Regional Solid Waste Site EMS : project reviewer for the development of an EMS according to ISO 14001: 2004 for the regional solid waste site, Buffalo City, 2006
- Environmental Audit of Mt Frere and Mt Ayliff low cost housing development, Umzimvubu Municipality : project reviewer, 2007
- Johnson & Johnson Audit of Waste Contractors : project manager and lead auditor of six waste contractors located within the Eastern Cape, 2005 and 2006
- Environmental Audit of Coega Brick : project reviewer of an environmental audit of Coega Brick Quarry, 2006
- Worldwide Fund for Nature South Africa (WWF-SA) : project manager and reviewer for Due Diligence Capacity Assessment of the Eastern Cape Parks Board for UNDP/GEF, 2005
- Bluewater Energy Services Internal Auditor Training : project manager and training facilitator for internal environmental management systems ISO 14001:2004 auditor training, 2005
- Due Diligence of TJC Holdings Depot, Ermelo Depot and Steelpoort Depot : project reviewer for Due Diligence of environmental, occupational, health and safety for three depots, 2005
- Globeleq, Kelvin Power Station Audit : project reviewer and auditor for an environmental compliance audit of the Kelvin Power Station in Kempton Park, 2005
- SATI Due Diligence : project reviewer for environmental Due Diligence of an international delivery company, 2005
- Amatole District Municipality - Environmental Management Plan and Environmental Management System according to ISO 14001 : project manager and reviewer for the development of an EMP and EMS for the Amatole District Municipality, 2005

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Environmental Impact Assessments, Screening and Management Plans

- St Helena Wind farm: Project Director and reviewer of an Environmental Impact Assessment for the development of a wind farm, ongoing
- ESKOM Melspruit / Riebeek 132kV EIA: Project Director of an EIA for the proposed establishment of a 132 kV power line, ongoing
- ESKOM Kwelera: Project Director of a Basic Environmental Assessment in the Kwelera area, ongoing
- ESKOM Greater Mthatha ECO: Project Director for ECO Services in the greater Mthatha area, ongoing
- NEMA S24G Application, Beaufort West: Project Reviewer of a S24G application for the National Environmental Management Act, ongoing
- ESKOM Kariega: Project Director of a Basic Environmental Assessment in the Kariega area, ongoing
- Sani – Pass Upgrade: Project reviewer of an EIA for a major road upgrade between South Africa and Lesotho, ongoing
- ESKOM Dieprivier / Kareedouw 132kV EIA: Project Director of an EIA for the proposed establishment of a 132 kV power line, ongoing
- ESKOM Melkhout / Patensie 132kV EIA: Project Director of an EIA for the proposed establishment of a 132 kV power line, ongoing
- ESKOM Melkhout / Dieprivier 132kV EIA: Project Director of an EIA for the proposed establishment of a 132 kV power line, ongoing
- ESKOM Ruigtevallei / Dreunberg 132kV EIA: Project Director of an EIA for the proposed establishment of a 132 kV power line, ongoing
- Caledon Wind farm: Reviewer of an Environmental Impact Assessment for the development of a wind farm, ongoing
- PRASA Rolling Stock: Project Reviewer for a feasibility study for the procurement, financing and maintenance of rolling stock for metro long distance rail services, 2011
- Witberg Road S24G Application: Project Director of a S24G Application, 2011
- Afrikaanse Taal Monument ECO: Project Director of an Environmental Management Plan and ECO Services, 2011
- Greater Port Harcourt Nigeria: Phase 2: project manager for the development of an Environmental Management Plan, 2010
- Greater Mthatha Network Strengthening EIA's. Project director for 3 full EIA's in connection with proposed electrical infrastructure in the Greater Mthatha Area including construction of approximately 200km of overhead powerlines and associated substations, ongoing
- George Western Bypass EIA: project reviewer for a full EIA for a proposed road to bypass George town, 2009

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- Extension of Aloes II Hazardous Waste Disposal Facility : project manager and reviewer for a full EIA for the extension of the Aloes II Hazardous Waste Disposal Facility in Port Elizabeth, ongoing
- Potsdam Housing EIA : project director for a full EIA for a low cost housing development, 2011
- Upgrading of the MR0400 between Hankey and Patensie : project reviewer for developing Environmental Management Plans and the permitting of borrow pits required for the upgrade of the MR0400 between Hankey and Patensie, 2010
- Upgrading of the MR0453 between Uitenhage and Witteklip : project reviewer for developing Environmental Management Plans and the permitting of borrow pits required for the upgrade of the MR0453 between Uitenhage and Witteklip, 2011
- Upgrading of the MR0450 and MR0460 between Addo and Motherwell : project reviewers for developing Environmental Management Plans and the permitting of borrow pits required for the upgrade of the MR0453 between Uitenhage and Witteklip, 2010
- Stutterheim Tourism Centre and Filling Station EIA : project director and reviewer of an EIA for the development of the tourism centre and filling station in Stutterheim, 2009
- Hemmingways Lifestyle Centre : project director for a basic assessment for the Hemmingways Lifestyle Centre, 2009
- Kwankwebu River Bypass Pipeline EIA : project manager and reviewer for a full EIA for a proposed pipeline to bypass the Kwankwebu River for the transfer of water into the Buffalo River catchment, 2009
- Umtata Dam Recreational Tourism Facility: project director for a basic assessment for the establishment of a resort in the Luchaba Nature Reserve, Umtata Dam, 2009
- Sewage Facility Elliotdale : project director for a basic assessment for an office block in Elliotdale, 2009
- Second Creek Housing Development : project director for a basic assessment for the formalisation of the Second Creek informal housing settlement, East London, 2009
- Department of Environmental Affairs and Tourism, review of EIA applications submitted in terms of section 22 of Environment Conservation Act for the Free State Office backlog, project manager and reviewer, 2008
- Morupule B Power Station EIA : project reviewer for a full EIA for a proposed coal fired Power Station in Botswana, 2008
- Installation and decommissioning Underground Fuel Storage Tanks : project leader for the installation and decommissioning (redundant tanks) of Underground Fuel Storage Tanks at the DaimlerChrysler East London Manufacturing plant, 2008
- Motherwell Buy-back centre EIA : project leader for a Basic Environmental Assessment and Permitting for the Motherwell Buy-back centre in Nelson Mandela Bay municipality (Port Elizabeth), 2008

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- Butterworth Buy-back centre EIA : project leader for a Basic Environmental Assessment and Permitting for the Butterworth Buy-back centre in Mnquma municipality (Butterworth), 2008
- Gonubie Valley Golf Estate, Eastern Cape EIA : project manager and reviewer of full EIA for a proposed residential development, comprising 800 erven and a championship 18-hole golf course with amenities including a five star hotel along the Gonubie River estuary, 2008
- BAR for R300 Road Upgrade : project reviewer for a Basic Environmental Assessment for the upgrading of the R300 road in Cape Town, 2007
- Department of Environmental Affairs and Development Planning: undertook training for eight Environmental Practitioners on the Environment Conservation Act EIA Regulations for the review of the EIA backlog in the Western Cape, 2007
- Department of Environmental Affairs Compliance Monitoring Project : training of Green Scorpions to Audit General and Hazardous Waste Sites, 2007
- Haven Hills Cemetery Basic Assessment : project manager and reviewer for a Basic Assessment for the extension of the Haven Hills Cemetery, 2007
- Amatole District Municipality Hamburg Bungalows EIA : project manager and reviewer for a basic assessment and engineering bulk services feasibility study for the construction of bungalows at Hamburg, Eastern Cape, 2007
- Qaukeni Local Municipality Regional Landfill Site : project manager and project reviewer for the Quakeni Local Municipality Regional Landfill Site. The project involves site identification and ranking of the sites as part of the EIA process, 2006
- ESKOM, Mafini, 66 KV Powerline rebuild : project manager and reviewer for a Basic Environmental Assessment for a 66 kV powerline rebuild, 2007
- ESKOM, Tsolwana, 66 KV Powerline : project manager and reviewer for a Basic Environmental Assessment for a 66 kV powerline, 2007
- River Sands Eco Estate: project reviewer for an EIA Scoping Study for a proposed residential estate comprising 64 residential erven, 2007
- Emerald Sky Housing Development : project reviewer for a Basic Environmental Assessment for the development of a medium income housing development comprising 648 units in Amalinda, East London, 2007
- Meandering Creek Country Estate: project reviewer for an EIA Scoping Study for a proposed residential estate comprising of 40 erven, 2007
- ESKOM, Southern Region, Qumbu-Ugie Powerline EIA : project manager and reviewer for the environmental scoping process and EMP and ECO audits for the construction of a 60 km long, 132 kV overhead powerline from Qumbu to Ugie, 2007
- ESKOM Siphakweni Powerline EIA : project manager and reviewer for the EIA (including specialist studies) of a proposed 22 kV powerline, 2006
- ESKOM, Southern Region, Hogsback Powerline EIA : project manager and reviewer for the route selection, environmental scoping process and EMP for the development of a 33 kV underground powerline in Hogsback, 2006

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- Green Fountain Farm : project manager and reviewer for the EIA for the development of a low impact housing estate to be located within the coastal zone and adjacent sensitive dune environment, 2006
- City of Tshwane Metropolitan Municipality, Staatsartillery Road, Pretoria EIA : project reviewer for the environmental scoping process for the extension of an existing road, November 2005
- Vodacom, Nzonyane Overhead Powerline EIA : project manager and reviewer for the environmental scoping process and EMP for the construction of a 6 km long, 22 kV overhead powerline, 2005
- SASOL Qunu Integrated Energy Centre : project manager and reviewer for the EIA for the proposed Integrated Energy Centre to be located at Qunu, Eastern Cape. The project involves the construction of fuel storage facilities, 2005
- ESKOM, Southern Region, Dumasi-Zimbane 132 kV Overhead Powerline EIA : project manager and reviewer for the environmental scoping process and EMP for the construction of a 90 km powerline, 2005
- Erven 3455, 799 and 801, East London : project reviewer for the environmental screening of the sites intended for the construction of a residential town house development, 2005
- ESKOM, Southern Region, Kubusie Powerline EIA : project manager for the environmental scoping process and EMP for the construction of an 11 kV overhead powerline near Keiskammahoek, 2005
- Mbizana Poultry Abattoir : project reviewer for an EIA Scoping Study for a proposed poultry abattoir to be located in Mbizana, Eastern Cape, 2005
- Gonubie Equestrian Estate SEA and EIA : project manager and reviewer for the SEA and environmental scoping of proposed Equestrian Estate in Gonubie, 2005
- Kei Mouth Housing Development, Eastern Cape, South Africa : project manager of screening for a new residential development along the banks of the Great Kei River, 2005
- Indaka Municipality EIA : project reviewer for environmental scoping of low cost housing development at Kwallathi, 2005
- ESKOM, Haven/Cwebe/NPA 22 kV Powerline, Eastern Cape : project manager and project reviewer for the EIA (including specialist studies) for the proposed 22 kV powerline running from the Haven to Cwebe, 2005

Integrated Waste Management

- Institute of Waste Management Training : development of training material and facilitator of a "Basic Waste Training" course, 2011
- Amathole District Municipality Ibika Landfill: Project Director for the Operations and Maintenance of Ibika Landfill Site, 2011
- Kokstad IWMP: Project Director and reviewer for an Integrated Waste Management Plan for the Greater Kokstad Municipality, 2011
- Greater Port Harcourt Nigeria: Phase 2 : project manager for site selection, design and construction of ten buy back centres, ongoing

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- Greater Port Harcourt Nigeria: Phase 2: project manager for development of Concept and Design Principles and Waste Engineering Services for the Central City District and the Government Precinct, 2011
- Aloes Hazardous Waste Site EIA: project director and reviewer for the extension of Aloes hazardous waste site, Port Elizabeth, 2011
- Feasibility Study of the Mbashe and Mquma Waste Transfer Stations (Phase 2): project director and reviewer for undertaking a basic assessment, geohydrological assessment and waste license application for waste transfer stations at Mbashe and Mquma local municipalities, 2011
- Feasibility Study of the Mbashe and Mquma Waste Transfer Stations : project director and reviewer for site selection and ranking of waste transfer stations at Mbashe and Mquma local municipalities , 2009
- Waste Transfer Station for the East London Industrial Development Zone : project manager for site selection, permitting, design and construction of a waste transfer station, 2010
- Status Quo of Waste Management in Matjhabeng : project leader and reviewer of the status quo of waste management in Matjhabeng including an institutional assessment, 2009
- Umatata Waste Site Development: project director and leader of the site selection and ranking of a landfill site in Umtata, 2009
- Institute of Waste Management Training : development of training material and facilitator of a “Basic Waste Training” course, 2009
- Ndwedwe Integrated Waste Management Plan : project reviewer for development of an Integrated Waste Management Plan for Ndwedwe Local Municipality, 2009
- Gauteng 2055 Development Strategy : Waste Management Paper : project manager and environmental scientist for the drafting of the Waste Paper for the Gauteng Department of Economic Development as part of the Gauteng 2055 Development Strategy, 2008
- Greater Port Harcourt Integrated Waste Management Plan: Project leader and project scientist for the development of an Integrated Waste Management Plan for the redevelopment of the City of Port Harcourt, Nigeria, 2008
- Training and Capacity Building for East London Industrial Development Zone officials, 2007
- Department of Environmental Affairs and Tourism Compliance Monitoring Project : project reviewer and facilitator for the waste management component as part of a consortium for developing a compliance monitoring system for the department, 2007
- East London Industrial Development Zone (ELIDZ) Interim Waste Solution: project manager and reviewer for the implementation of waste management solution at the Automotive Supply Park at the East London Industrial Development Zone, 2007
- Training and Capacity Building for Buffalo City Municipality Waste Officials, 2005/6

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- Regional Waste Disposal Site Project, Eastern Cape, South Africa: project manager for the East London Regional Waste Disposal Site, including the co-ordination of the Monitoring Committee, 2004-2007
- Waste Transfer Station Project, Eastern Cape, South Africa : project manager for site selection and permitting of the Westbank Transfer Station and responsible for the scoping report on the selection of candidate sites for the waste transfer station; undertaking a comparative EIA on the best alternative sites; and drafting an Environmental Management and Monitoring Plan for the chosen site. These studies culminate in the preparation of the DWAF Permit Application Report, which involves the synthesis of a variety of technical information, 2004-2005
- East London Recycling Buy Back Centres, Eastern Cape, South Africa: project manager for establishment of five recycling Pilot Buy Back Centres for BCM. Project includes waste characterisation, public participation, and training of informal recycling community, planning, commissioning, monitoring and data collection. Personal responsibilities include client liaison, project management and project review, 2004-2007
- Hazardous Waste Permit Upgrade Project, Eastern Cape, South Africa: permit upgrade to receive hazardous waste for East London Regional Waste Disposal Site (ELRWDS): Project Manager responsible for managing the public participation process and preparing the environmental impact report, following input from specialist environmental studies. Responsible for the review of the Permit Application Report, which includes technical information from the preliminary design as well as the Environmental Investigations, 2005-2006
- Waste Management Reference Manual for the ELIDZ: project manager and reviewer for waste management reference manual for the implementation action plan of the ELIDZ Integrated Waste Management Plan, 2006
- OR Tambo District Municipality IWMP: project reviewer for the development of seven independent Integrated Waste Management Plans for each of the seven municipalities, 2005
- Johnson & Johnson Audit of Waste Contractors : project manager and scientist for the audit of a existing waste facility and project planning of a new waste facility, 2005 – 2008

Coastal Zone Management

- Durban Port Sub-Aqueous Tunnel Environmental management plan : project reviewer of ECO reports for the new sub-aqueous service infrastructure tunnel project at the Port of Durban, 2007
- Port of East London Harbour Wall Replacement EIA. Project Reviewer for a Basic Environmental Assessment for the replacement of a section of collapsed harbour wall, 2007
- Coastal Walkway Assessment, Port Elizabeth : project reviewer for an environmental assessment for the establishment of a boardwalk along Port Elizabeth, 2006
- Environmental Screening for the establishment of Small Boat Harbour at Gulu, Eastern Cape, 2006
- Humpback Dolphin Sanctuary Assessment, Port Elizabeth : project reviewer for an environmental assessment, 2006

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- Profiling Estuaries in IDP Planning : project reviewer of a collaborative project involving the preparation of policies and procedures for incorporating information and knowledge on estuaries into the IDP and related processes, 2006
- Amatole District Municipality Coastal Zone Management Plan : project manager and reviewer for a Coastal Zone Management Plan for the Amatole District Municipality, 2004 – 2005
- Assessment of the environmental impacts associated with the proposed release of sewage into the surf zone adjacent to the City Pump station, East Bank, east London : project manager and scientist, April 2005

Strategic Environmental Assessments

- George Municipality Strategic Environmental Assessment : project reviewer for the development of a SEA for the entire municipal area for input into the Spatial development Framework, 2008
- Kei Mouth Housing Development : project reviewer for a new residential development was proposed along the banks of the Great Kei River. A Strategic Environmental Assessment was undertaken to determine potential development areas, no-go areas and go-but areas with guidelines as to a low impact type of development, 2005
- Gonubie Equestrian Estate : project reviewer for a new residential development and equestrian estate. A Strategic Environmental Assessment was undertaken to determine potential development areas, no-go areas and go-but areas with guidelines as to a low impact type of development, 2005
- Gonubie Golf Estate : project manager and reviewer for a limited strategic environmental assessment for a proposed residential development compiling some 800 erven and a championship 18-hole golf course with amenities including an upmarket hotel is proposed along the Gonubie River Estuary, 2005

Other Studies

- Mogale City Open Space Plan: Project Reviewer / Director for the development of an open for Mogale City, 2011
- Greater Port Harcourt Nigeria: Phase 2 : project manager for the development of an Open Space Plan for the New City, 2010
- NEMA EIA Fee Structure: development of a fee structure for applications in terms of NEMA EIA regulations 2006, 2009
- Buffalo City Municipality State of Energy Policy and Strategy: project director and reviewer of the state of energy report with an energy policy and strategy for Buffalo City Municipality, 2008
- Eden District Municipality SOER : project reviewer for the State of Environment Report for the Eden District Municipality, 2008
- Kaaimans Valley EMF : project reviewer for the development of a EMF for the sensitive catchment area of the Kaaimans River area outside George, 2008
- Amathole Economic Development Agency : project reviewer for developing an Urban Development Plan for the Hamburg area, Eastern Cape, 2007

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- GIS Open Plan Assessment for Buffalo City Municipality : project manager, 2007
- Developing and Integrated GIS for the East London Industrial Development Zone, Project manager, 2006-2007
- Cemetery Investigation Project, Eastern Cape, South Africa: project manager responsible for co-ordinating the investigation of suitable sites for the establishment of a municipal cemetery, including environmental studies and geotechnical investigations, 2005

Publications

Olivier, M.J. & Garland, G.G., 2003: Short-term Monitoring of Foredune Formation on the East Coast of South Africa, *Earth Surface Processes and Landforms*, 28, 1143-1145

Olivier, M.J., 1998: Foredune Development at Tugela River Mouth, Unpublished M.Soc.Sc. Thesis, University of Natal, Durban

Olivier, M.J. & Rousouw, N., 1998: Coastal Bibliography of Southern Africa, Occasional Publication of South African Association of Geomorphology, Grahamstown

Olivier, M.J. & Garland, G.G., 1997: Foredune development at Tugela River Mouth, *Abstracts: Proceedings of 6th International Geomorphology Conference*, September 1997, Bologna

Olivier, M.J., 1996: Monitoring foredune formation at Tugela river on the KwaZulu-Natal coast, South Africa, *Abstracts: Proceedings of the 28th International Geographical Congress*, 4-10 August 1996, Hague

Olivier, M.J., Bell, F.G. & Jermy, C.A., 1994: The effect of rainfall on slope failure, with examples from the greater Durban area, *Proceedings of the 7th International Congress: International Association of Engineering Geology*, 5-9 September 1994

Garland, G.G. & Olivier, M.J., 1993: Predicting landslides from rainfall in a humid subtropical region, *Geomorphology*, 8, 165-173

Olivier, M.J., Garland, G.G. & Jermy, C.A., 1993: Rainfall-landslide relationships in Durban: A preliminary assessment, *Geo-Okodynamik*, 15, 85-92

Olivier, M.J. 1992: The Influence of Rainfall on Slope Development in Durban and Environs, Unpublished Honours thesis, University of Natal, Durban

Professional Affiliations

Southern African Institute of Ecologists and Environmental Scientists
Institute of Waste Management of Southern Africa: Executive Committee Member

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Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Fair

Signature

Date

CURRICULUM VITAE

Company	Arcus GIBB
Name	Patricia Jean JENNINGS
Nationality	South African
Date of Birth	16.12.1959
Profession	Environmental Consultant
Position	Senior Environmental Scientist
Specialisation	EIA Review
Start date with Arcus GIBB	2008 – Permanent full-time staff member

Key experience

An environmental consultant with 22 years of experience, Pat Jennings specialises in Environmental Impact Assessments (EIAs), EIA Review, environmental governance and institutional development. Prior to joining Arcus GIBB, her experience includes 10 years in the regulation and review of EIA applications with provincial authorities in KwaZulu-Natal and the Eastern Cape. During these years she was based at the Dundee and Empangeni offices of the KZN Dept of Agriculture and Environmental Affairs, and at the Port Elizabeth office of the Eastern Cape Department of Economic Affairs, Environment and Tourism.

Her key experience includes:

- **Review and conducting of Environmental Impact Assessments and related reports** for a variety of small, medium and large-scale projects; such as industrial facilities, housing estates, community water supply projects, rural roads, resorts, farm dams, power lines, filling stations and cellular telephony base stations
 - **Compilation and quality control of records of decision for environmental authorisations**, including the formulation of conditions of authorisation
 - **Development of operational guidelines, procedures and templates** for use in the management and review of EIA applications
 - **GIS** needs analysis, institutional co-ordination and database development
-

Qualifications

Higher Diploma: Nature Conservation : Port Elizabeth Technikon (Saasveld), 1994
Diploma (Nature Conservation) : Cape Technikon, 1986
UNIGIS Post Graduate Diploma in GIS, Port Elizabeth Technikon (not completed)

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Career summary

- Feb 2008 to date **Arcus GIBB** – Senior Environmental Scientist
- Responsible for undertaking and/or leading environmental impact assessment and institutional development related projects.
- Oct 2005 to Jan 2008 **KwaZulu-Natal Department of Agriculture and Environmental Affairs (DAEA) - Deputy Manager: Umzinyathi District**
- Duties included:
- Regional co-ordinator of the Impact Assessment component responsible for:
 - Ensuring the sharing and transfer of information relating to Impact Assessment in the North Region
 - Maintenance of general standards and quality of decision making in the implementation of legislation and development of Records of Decision
 - Development of applications administration system and procedures
 - Representing the Department at national Regulations Implementation Workshops and on the Regulations Amendment Task Team
 - Management of the Environment function in the District (District Municipality KZ 24) consisting of seven staff members divided into four operational components: Impact Assessment, Compliance Monitoring and Enforcement, Pollution and Waste Management, and Advisory Services
- Mar 2002 to Sep 2005 **DAEA** – Assistant Manager: Impact Assessment
- Duties included:
- Review of applications for authorisation of activities listed in terms of the Environment Conservation Act regulations and production of Records of Decision, including quality control of work produced by component
 - Mentoring / guidance of junior staff
 - Comment as required in terms of legislation administered by other authorities
 - Contribute to standardisation of operational guidelines, procedures and document formats for the Chief Directorate through participation on the relevant committees and discussion groups
- Mar 2002 to Apr 1993 **Eastern Cape Department of Economic Affairs, Environment and Tourism (DEAE&T) – Chief Nature Conservator: Environmental Impact Management & GIS**
- Duties included:
- Review of applications for authorisation of activities listed in terms of the Environment Conservation Act regulations and compilation of Records of Decision
 - Comment on Environmental Management Plans, mine closures, rezoning and subdivision applications as required in terms of legislation administered by other authorities.
 - Undertake GIS needs analysis within Department of Economic Affairs, Environment & Tourism
 - Co-author and edit GIS Co-ordination report for Eastern Cape government.

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- Departmental representative and secretary of Inter-Departmental Committee on GIS
- Development of reserve based GIS using PC ArcInfo and ArcView, data capture by means of digitizing and GPS
- Development of associated non-spatial databases (MS Access) in consultation with users

Apr 1988 to
Mar 1992

Cape Nature Conservation, Eastern Cape –
Senior Nature Conservator: Scientific Support Services

Duties included:

- Field work for botanical studies
- Laboratory and field work for mammal studies
- Compiled bird checklists for 11 reserves
- Contributed to a number of scientific reports and semi-popular articles
- Prepared maps and diagrams for publication

Nov 1986 to
Mar 1988

Hermanus Municipality, Western Cape - Superintendent Grade D

Duties included:

- Management of recreational facilities on 16 km coastal strip and estuary
- Control of invasive alien vegetation and dune erosion

Project experience

Key Projects and associated experience include:

Institutional Support and Planning

- Development of strategic advisory studies in terms of the NEMA EIA regulations, 2006. Report on development of a fee structure for applications for environmental authorisation. Project Leader. Department of Environmental Affairs and Tourism, 2008/9
- Compilation of the Second Edition Environmental Implementation Plan for the Eastern Cape Province. Project Scientist. Eastern Cape Department of Economic Development and Environmental Affairs, 2009
- Development of a screening protocol to determine environmental authorisation requirements of proposed social housing projects. Project Scientist. Eastern Cape Department of Human Settlements, 2009

Environmental Impact Assessments

- N2 Grahamstown bypass embankment strengthening EIA (Basic Assessment). Project scientist. Terreco/SANRAL, 2008
- Elliotdale sewage facility for a new office block EIA (Basic Assessment). Construction of a septic tank and soakaway system to service new multipurpose provincial government offices. Project scientist. C3/Eastern Cape Department of Public Works, 2008

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- Luchaba Nature Reserve Resort EIA (Basic Assessment). The proposed development of a small resort and camp site on the banks of the Mthatha Dam. Project Scientist. UWP/King Sabata Dalindyebo Municipality, 2008/9
- East London Second Creek informal settlement formalisation EIA (Basic Assessment). The project entailed formalisation of an existing informal settlement. Project scientist. Buffalo City Municipality, 2009
- Stutterheim tourism centre and filling station development EIA. Proposed development of a tourism centre and commercial precinct with a filling station component on a portion of municipal commonage. Project Scientist. ASPIRE, 2008/9
- Greater Mthatha Eskom 132 kV network strengthening EIA. Scoping Environmental Scientist. Eskom Distribution, 2009
- Aloes Hazardous Waste Facility Extension EIA. The project entailed the addition of an additional cell to an existing waste facility located in Port Elizabeth municipal area. Project Scientist. EnviroServ, 2009

Water use registration applications

- N2 Grahamstown bypass embankment strengthening. Environmental scientist. Terreco/SANRAL, 2008
- Mthatha Regional Water Supply. Environmental scientist. Internal, 2009

Heritage Resource permit applications

- N2 Grahamstown bypass cutting wall rehabilitation. Environmental scientist. Terreco/SANRAL, 2008

Environmental Control Officer

- Cutting wall rehabilitation and embankment strengthening on the N2 Grahamstown bypass. Terreco/SANRAL, 2008

Environmental Management Programmes/Plans

- Cutting wall rehabilitation and embankment strengthening on the N2 Grahamstown bypass. Environmental Scientist. Terreco/SANRAL, 2008
- Mount Pleasant Housing Project, Fort Beaufort, Eastern Cape. Environmental Scientist. Eastern Cape Department of Human Settlements, 2009
- Siyanda New Rest Housing Project, Butterworth, Eastern Cape. Environmental Scientist. Eastern Cape Department of Human Settlements, 2009

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Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Good

Signature

Date
