

CURRICULUM VITAE

Name of Firm : Aurecon South Africa (Pty) Ltd
Name of Staff : A van der Merwe
Profession : Environmental Engineer
Year of Birth : 1973
Years with Firm : 16
Nationality : South African

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

- Registered Professional Environmental Engineer (20030250 – 3 November 2003), Engineering Council of South Africa (PrEng)
- Member (091496 – 16 March 2005), South African Institution of Civil Engineering (MSAICE)
- Member (30105050 – 8 September 2005), Institute of Waste Management of Southern Africa (MIWMSA)
- Member (2171 – 7 April 2008), International Association for Impact Assessment: South Africa (IAIASa)

KEY QUALIFICATIONS:

Andries van der Merwe is an Environmental Engineer and heads up the environmental team of the Environment & Advisory Services Unit of the Aurecon Cape Town Delivery Centre, which includes a branch in George. He takes final responsibility for all projects and marketing activities undertaken by his team and has been involved in a wide spectrum of infrastructure development projects throughout Africa. He regularly acts as project team leader and provides technical assistance and input on projects undertaken that typically include large-scale Environmental Impact Assessments (EIAs) related to the resource and energy sectors. He has a keen interest in the application of Multicriteria Decision Making (MCDM) Models in EIA, environmental engineering and strategic planning projects and enjoys challenges in this regard. Recent large EIAs include the Phase 2 SEIA for the Rössing Uranium Mine Expansion Project in Namibia and a series of EIAs for the proposed Moatize Mine Expansion and Nacala Rail Corridor through Mozambique and Malawi for Vale in which he acted as the overall project leader, supported by a senior project manager per each of the five EIA packages.

He has been involved in a number of training and capacity building projects in the field of environmental management. Recent examples include the second phase of the Integrated Industrial Pollution Prevention programme in Mozambique that focused on capacity building in the Environmental Ministry in Mozambique, with specific emphasis on hazardous waste, pollution control and related strategies, as well as the environmental management module of the European Union funded infrastructure asset management training programme run by the National Department of Provincial and Local Government in South Africa for officials of various local and district authorities.

He is a trained SABS/ISO 14001 Environmental Management Systems (EMS) auditor and his specific expertise allows him to assume a leading role in the compilation of Environmental Management Systems (EMSs) and Environmental Management Plans (EMPs) for all life-cycle phases of typical infrastructure development projects, as well as the monitoring and auditing of the implementation of EMSs and EMPs on site. Recent projects of this nature include the operational EMP for the Sunderland Ridge Wastewater Treatment Works, the design and construction EMP for the Gautrain project, EMP implementation monitoring on the 60km Polokwane Effluent Transfer Project for AngloPlatinum and the first phase of EMS development completed for Yum! Restaurants International, that represents KFC in South Africa.

Earlier in his career, he has been exposed to construction environments in both full time and part-time site supervision roles and the design office where he was responsible for the engineering designs and contract documentation for a wide spectrum of infrastructure projects and again later in his career with specific focus on construction EMP implementation monitoring and auditing.

EDUCATION:

- B Eng (Civil), University of Pretoria, South Africa, 1995

EXPERIENCE RECORD:

May 2010 to date Emergency Desalination Plant, Mossel Bay, South Africa Project Leader

Compilation of a Section 24G application in terms of the National Environmental Management Act for an emergency 15M³/d seawater reverse osmosis plant as a result of more than 1:150 year drought situation in the Southern Cape, inclusive of a construction phase Environmental Management Plan. (Mossel Bay Municipality).

March 2010 to date Environmental Impact Assessments for the Nacala Rail Corridor, Mozambique and Malawi Project Leader

A series of four Environmental Impact Assessment packages for the proposed 860km Nacala Rail Corridor for the export of coal from the Vale Moatize Mine involving the construction and rehabilitation of the railway line between the loading terminal at the mine and the offloading terminal at the proposed deepwater port at Nacala-a-Velha, passing through southern Malawi. The project assessed the following components: the expansion of the existing mine loading terminal to accommodate the additional train traffic, transport of coal in trains (each comprising 4 diesel electric locomotives and 115 wagons with a capacity of 60t), management of train movement in the yards with priority given to loaded trains, signalling and control of movement of trains along the route based on GPS technology to allow for monitoring the movement of each and depots along the route to allow for provision of supplies and exchange of teams. It also included the deepwater port at Nacala-a-Velha with new coal terminal off-loading facilities using rail car tippler dumpers, workshops to house rolling stock and to allow for maintenance of trains following discharge and infrastructure for fuel provision. Construction is proposed to start mid-2011, with export capacity ramping up to 26Mtpa in 2016. The focus of the assessments was to review the relevant scoping reports, EPDA reports and available baseline data and acquiring updated information where necessary to describe and assess the predicted social and environmental impacts of the proposed additional infrastructure. Each package included a common assessment of the strategic impacts related to the project as a whole within the region, to allow for an understanding of each component within the bigger picture. (Vale Mozambique).

December 2009 to date **Emergency Desalination Plant, Plettenberg Bay, South Africa**
Project Leader

Compilation of a Section 24G application in terms of the National Environmental Management Act for an emergency 2M ℓ /d seawater reverse osmosis plant as a result of more than 1:150 year drought situation in the Southern Cape, inclusive of a construction phase Environmental Management Plan. (Bitou Municipality).

September 2009 to date **HSE Brochure for Rössing Uranium's Expansion Project, Arandis, Namibia**
Project Leader

Compilation of a succinct and easily accessible brochure describing Rössing Uranium's Health, Safety and Environmental Management System components such as management policies, programs and procedures already in use at the mine for wider public understanding. (Rössing Uranium / Rio Tinto).

August 2008 to date **Phase 2 Social and Environmental Impact Assessment for Rössing Uranium's expansion project, Arandis, Namibia**
Project Leader

The second phase Social and Environmental Impact Assessment for Rössing Uranium's expansion project including increased production in the current SJ open pit and the establishment of associated process facilities including additional crushers and ore stockpiles, the establishment of an acid heap leaching facility that would be a first in uranium processing, increased waste rock dump capacity and increased tailings capacity. The project included 12 specialist studies and involved a targeted focus group approach to public participation to enhance stakeholder participation. Involved for 12.5 person-months. (Rössing Uranium / Rio Tinto).

March 2010 to April 2011 **Environmental Impact Assessment for the Moatize Coal Mine Expansion Project, Tete, Mozambique**
Project Leader

The additional infrastructure required for the Moatize coal mine expansion included a second primary crusher and second coal processing plant, increased raw water supply and storage capacity, an upgraded water treatment plant and power substation, a new coal conveyor system, enlarged storage yard to accommodate two lines of coal, optimised materials handling between the existing operations and proposed expansion, upgraded leachate cut-off drains, upgraded tailings dam effluent filtration system, and solid waste landfill and hazardous waste disposal facilities. The Environmental Impact Assessment coincided with a pre-feasibility study (FEL2 Level) undertaken to determine the infrastructure required to accommodate the expansion of the mine. The aim of the assessment was to seek a decision regarding the project acceptability from the Mozambican environmental authorities (MICOA) through an update of the assessment completed for the first Moatize Mine complex and to describe, include and assess the proposed additional infrastructure. Involved for 1.3 person-months. (Vale Mozambique).

April 2010 to April 2011 **Application of a Multicriteria Decision Making Model to Rank Development Sites within Etosha National Park, Namibia**
Environmental Engineer

Application of a Multicriteria Decision Making (MCDM) Model to rank identified potential development sites in two zones within the Etosha National Park as part of the Environmental & Socio-Economic Impact Assessment for the proposed provision of staff housing and related infrastructure. Involved for 0.8 person-months. (Millennium Challenge Account Namibia).

**January 2009 to January 2011 Social and Environmental Management Plan for Mineral Exploration Drilling, Arandis, Namibia
Project Leader**

Compilation of a Social and Environmental Management Plan for exploration drilling activities within the overlap of the sensitive Namib-Naukluft Park and Rössing Uranium mine licence area. Later also appointed for a Phase 2 exploration drilling Social and Environmental Management Plan to address more detailed infill drilling, inclusive of rehabilitation plans for drill sites and access routes. Involved for 0.5 person-months. (Rössing Uranium / Rio Tinto).

**February 2010 to June 2010 Social and Environmental Management Plan for New Sulphuric Acid Storage Tank at the Rössing Uranium Mine, Arandis, Namibia
Project Leader**

Compilation of a Social and Environmental Management Plan for the proposed new 15Kt sulphuric acid storage tank located within the mine precinct adjacent to similar tanks to increase acid storage capacity. Involved for 0.1 person-months. (Rössing Uranium / Rio Tinto).

**July 2008 to December 2009 Social and Environmental Impact Assessment for a Bulk Sulphur Handling Facility, Walvis Bay, Namibia
Project Leader**

Compilation of a Social and Environmental Impact Assessment, inclusive of a Social and Environmental Management Plan for the proposed bulk sulphur importation, stockpiling and handling facility in the Port of Walvis Bay. Involved for 0.5 person-months. (Rössing Uranium / Rio Tinto).

**May 2009 to December 2009 Social and Environmental Screening of Potential Railway Route Alternatives, Southern Malawi
Project Leader**

Screening of 4 potential railway alternatives through southern Malawi, as part of a wider study to determine the feasibility of establishing an export corridor from Tete in Mozambique, through Malawi, to the port of Nacala-a-Velha in Nampula. The environmental screening coincided with a FEL2 level engineering study evaluating the technical and financial feasibility of the routes. The environmental and social screening was done using a simplified Multicriteria Decision Making Model and comprised a review of background information, authority liaison and meetings, compilation of a list of suitable social and environmental screening criteria and rating methodology for each specified criteria, a detailed legal framework review, fieldwork to confirm sensitivity of the receiving environment, a fatal flaw analysis, GIS mapping of findings, preparation of cost estimates of social and environmental mitigation measures including resettlement (split into capital and operational costs) and presentation of the findings and recommendations in a summary report. Involved for 0.8 person-months. (Vale Mozambique).

**May 2008 to August 2009 Environmental & Socio-Economic Impact Assessment for proposed NamPower coal-fired power station at Walvis Bay, Namibia
Environmental Engineer**

Lead consultancy services for the Environmental & Socio-Economic Impact Assessment for proposed NamPower coal-fired power station and additional black start facility at Walvis Bay that included a site screening and selection process through the application of a Multicriteria Decision Making Model, a scoping study and the development of an Environmental Management Plan. Involved for 2.0 person-months. (Namibian Power Corporation).

November 2008 to June 2009 **Review of the Environmental Studies and Order of Magnitude Cost Estimate and Planning for Mine Expansion in Moatize and Nacala Rail Corridor from Moatize to Nacala-a-Velha, Mozambique and Malawi**
Project Leader

An updated Bankable Feasibility Study was required for the entire Moatize Phase 2 mine expansion to step up production and export through the planned rail link to Nacala through southern Malawi, inclusive of the planned construction of a deepwater port at Nacala-a-Velha in Mozambique. The deliverables included a general social and environmental mitigation cost estimate, a specific social resettlement mitigation cost estimate, generic statements of risk and identification of potential fatal flaws related to the different alternatives, detail on the required specialist studies with associated cost estimates, costs for completion of full Environmental Impact Reports (EIRs) and recommendations for way forward in a summary report. Involved for 3 person-months. (Vale Mozambique).

April 2008 to March 2009 **Application of a Multicriteria Decision Making Model to Optimise Future Land Use Planning at Rössing Uranium, Arandis, Namibia**
Project Leader

Development and application of a Multicriteria Decision Making (MCDM) Model to optimise future land use planning at Rössing Uranium focusing on the new waste dump areas, heap leach and ripios sites and mine tailings areas. Following the outcome of the study, further engineering work was done and the model later updated to reflect the updated information and to evaluate further development options. Involved for 1 person-month. (Rössing Uranium / Rio Tinto).

May 2008 to August 2008 **Paratus Emergency Generation Facility, Walvis Bay, Namibia**
Environmental Engineer

Environmental authorisation process in relation to a proposed 50MW heavy fuel oil emergency electricity generation facility located within Walvis Bay. Involved for 0.5 person-months. (Namibian Power Corporation).

February 2008 to August 2008 **Social & Environmental Management Plan for Rössing Uranium Expansion Phase 1 SEIA, Arandis, Namibia**
Environmental Engineer

The social & environmental management plan for the first phase of Rössing Uranium's expansion project including an acid manufacturing plant, radiometric ore sorter and new satellite SK4 pit. Involved for 1.5 person-months. (Rössing Uranium / Rio Tinto).

September 2006 to February 2008 **Overhead 132kV Powerlines to Liqhobong and Kao Diamond Mines, Lesotho**
Project Leader

Environmental Impact Assessment, Social Impact Assessment and Public Participation for the 38km of 132kV overhead powerlines from the Ha Lejone substation to the new Liqhobong and Kao Diamond Mines in northern Lesotho in difficult and inaccessible mountainous terrain. Involved for

4 person-months. (Liqhobong Mining Development Company and Kao Diamond Mine / Plantech Associates).

**September 2007 to December 2007 Environmental Screening of Infrastructure Alternatives, Sishen Iron Ore, Sishen, South Africa
Project Leader**

The environmental screening of proposed infrastructure route alternatives, as input into the design processes for the relocation of infrastructure required as part of the Sishen Expansion Project, to increase production at the Sishen opencast iron ore mine. Involved for 0.5 person-months. (Kumba Iron Ore).

**February 2007 to December 2007 Polokwane Effluent Transfer Project, Polokwane, South Africa
Environmental Control Officer**

Acting as the part-time Environmental Control Officer on this project to transfer treated sewage effluent from the Polokwane wastewater treatment works to the AngloPlatinum mine outside Mokopane, including two pumpstations, approximately 60km pipeline and several reservoirs along the alignment. Involved for 2 person-months. (AngloPlatinum).

**November 2006 to December 2007 Doornkraal Reservoir, Polokwane, South Africa
Environmental Control Officer**

Acting as part-time Environmental Control Officer on the 30MI Doorkraal Reservoir construction, west of Polokwane. Involved for 0.8 person-months. (AngloPlatinum).

**April 2006 to December 2007 Rietfontein Weir Dredging and Landfilling, Trichardt, South Africa
Project Leader**

The EIA for the dredging and landfilling of contaminated silt from the Rietfontein Weir in the Trichardtspruit north of the SASOL Syferfontein Mine outside Trichardt, inclusive of the public participation process and permitting of the proposed hazardous waste landfill. Involved for 1.5 person-months. (Department of Water Affairs and Forestry).

**July 2006 to September 2007 McHardy Stream Diversion Basic Assessment, Cullinan, South Africa
Project Leader**

The Basic Assessment in terms of the National Environmental Management Act EIA Regulations for the diversion of the McHardy Stream through the Cullinan Diamond Mine grounds to establish separation of polluted runoff from mining activities and unpolluted natural stormwater flow. Involved for 0.63 person-months. (De Beers Group Cullinan Diamond Mine).

**February 2006 to March 2006 BKM Mine Infrastructure, Postmasburg, South Africa
Project Leader**

Environmental technical assistance to the engineering design team involved with the design of mine access and services infrastructure for the BKM iron ore mine, named after the Bruce, King and Mokaning farms on which it is situated, adjacent to the existing Sishen Mine in the Postmasburg area in the Northern Cape. The assistance focused on the review of all available baseline information and mine environmental authorisation applications to establish a list of criteria that would ensure compliance to environmental best practice and authorisation permit conditions applicable to design of services infrastructure. The proposed mine will be an opencast mine with a

washing, screening and beneficiation plant, ore stockpiles, crushing plant, conveyors and a rapid rail loading facility. Involved for 0.2 person-months. (BKM Iron Ore Mine).

COUNTRIES OF WORK EXPERIENCE:

South Africa, Lesotho, Mozambique, Malawi, Nigeria, Angola, Namibia, Swaziland, Malaysia, Ethiopia and Ghana.

RECENT CAREER ENHANCING COURSES:

- 2011 : Investment in African Mining International Conference 2011 (Mining Indaba) Cape Town, International Investment Conferences
- 2010 : Basic MsProjects Course, Aurecon
- 2009 : BST Financial Management Course, Aurecon
- 2009 : International Association of Impact Assessment South African National Conference 2009 Wilderness, International Association of Impact Assessment South Africa (IAIAsa)
- 2009 : Life-Long Learning Solutions CPD DVD Series 2009, South African Association of Consulting Engineers (SAACE)
- 2008 : ProMan Financial Management Course, Ninham Shand Cape Town
- 2008 : WasteCon2008, the 19th Waste Management Conference & Exhibition, Durban, Institute of Waste Management of Southern Africa (IWMSA)
- 2008 : Life-Long Learning Solutions CPD DVD Series 2008, South African Association of Consulting Engineers (SAACE)
- 2007 : Life-Long Learning Solutions CPD DVD Series 2007, South African Association of Consulting Engineers (SAACE)
- 2007 : Handling Projects in a Consulting Engineer's Practice, South African Institution of Civil Engineering (SAICE)

PAPERS AND PUBLICATIONS:

The Application of the Ideal Mode Analytical Hierarchy Process Multicriteria Decision Making Model in Strategic Project Planning and Environmental Impact Assessments: Mellerson Pillay, Andries van der Merwe and Ashwin West - Paper presented at the International Association of Impact Assessment South African National Conference of 2009 held in Wilderness.

The application of Multicriteria Decision Making in the Early Stages of Environmental Impact Assessment and Technical Project Development Planning for a Large Mine Expansion Project: Rainer Schneeweiss and Andries van der Merwe - Paper presented at the International Association of Impact Assessment South African National Conference of 2009 held in Wilderness.

EMPLOYMENT RECORD:

- 2012 - date Technical Director, Aurecon, Cape Town & George, South Africa
- 2009 - 2011 Associate, Aurecon, George, South Africa
- 2008 - 2009 Associate, Ninham Shand, George, South Africa
- 2006 - 2007 Associate, Ninham Shand, Centurion, South Africa
- 2004 - 2006 Associate, Africon, Pretoria, South Africa
- 1999 - 2004 Environmental Engineer and Auditor, Africon, Pretoria, South Africa
- 1998 - 1999 Resident Engineer, Africon, Pretoria, South Africa
- 1996 - 1998 Design Engineer, Africon, Pretoria, South Africa

LANGUAGES:

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

AWARDS:

Merit Award For Excellence in Landscape Architecture in the category for ecological planning for the Centurion Environmental Management Framework (EMF) project completed in 2001 received from the Institute of Landscape Architects of South Africa (ILASA) in 2003.

CERTIFICATION:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me. I also certify that I have given permission for my CV to be included in the proposal.



(Signature of staff member and authorised representative of the firm)

14/03/2012
Date: _____
(Day / Month / Year)

Full name of staff member:

ANDRIES VAN DER MERWE