



Jones & Wagener

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CURRICULUM VITAE

18 January 2017
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MARIUS VAN ZYL

Profession:	Environmental Management
Date of Birth:	4 July 1955
Position in firm:	Technical Director
Years with the firm:	7
Nationality:	South African
Education / Qualifications:	B.Sc. Honours (Biochemistry & Environmental Management)
Languages:	English, Afrikaans
Employers:	
AECI (Pty) Ltd	1980
Rand Afrikaans University	1981 - 1984
Department of Water Affairs and Forestry	1984 - 1994
Jarrold Ball & Associates cc	1994 - 2005
Golder Associates Africa (Pty) Ltd	2005 - 2010
Jones & Wagener Consulting Civil Engineers (Pty) Ltd	2010 -



Areas of Expertise:

Integrated environmental authorisation processes, Environmental Impact Assessments and Environmental Management Programmes (EMPr's), Water Use Licence applications; Integrated Water and Waste Management Plans (IWWMPs); licensing of waste management facilities, identification and evaluation of candidate waste disposal sites; waste and residue characterisation, classification and assessments; waste and water management facility monitoring, interpretation of results and auditing; integrated environmental management solutions, public participation.

Professional Affiliations:

Registered Professional Natural Scientist (Pr.Sci.Nat.)

Member of the Institute of Waste Management of Southern Africa (IWMSA)

Member the International Association of Impact Assessors (South African Branch) (IAIAsa)

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FINANCIAL MANAGER: HC Neveling BCom MBL CIMA Adv Dip MA



Relevant Experience:

Integrated Environmental Authorisation Processes, Impact Assessments, EMPr's, Water Use Licence Applications and IWWMPs:

Kuyasa Mining: KiPower IPP Project, Delmas, South Africa: Project director of the multi-disciplinary team responsible for the integrated environmental authorisation, waste management licence and atmospheric emissions licence processes for the development of an Independent Power Producer (IPP) power plant and associated ash disposal facility. The project also involved the compilation of the Integrated Water Use Licence Application (IWULA) and the required Integrated Water and Waste Management Plan (IWWMP). In addition, assistance is being given for the preparation of the BID to be submitted to the Department of Energy (2010 – current).

BHP Billiton Energy Coal South Africa, Middelburg Mines: Project manager for the integrated environmental authorisation process for the Middelburg Water Reclamation Project (2010 – 2012).

BHP Billiton Energy Coal South Africa, Wolvekrans Colliery: Project manager of the multi-disciplinary team responsible for the environmental authorisation process for the expansion of the Boschmanskrans Section of the colliery. The project also involves the drafting of an Integrate Water and Waste Management Plan (IWWMP), as well as the Integrated Water Use Licence Application (IWULA) (2011 – 2014).

Lonmin Platinum, PMR Refinery, Brakpan, South Africa: Project director of the team responsible for the environmental authorisation process for the development of a new waste incinerator for Lonmin's PMR Refinery. The project also involves the drafting of the required Waste Management Facility Licence Application Report and EMPr. (2012 – current).

Kynoch Fertilizers, Potchefstroom, South Africa: Project leader for the environmental scoping and feasibility study of a storm water containment dam for Kynoch's Potchefstroom Factory. The project was carried out in association with AEMS and Hobbs Consulting. Project leader for site remediation investigation projects at Kynoch Fertilizer's Potchefstroom Factory and fertilizer depots in various locations in South Africa.

Waste Disposal Facility Licensing, Remediation and Upgrading:

Sappi Kraft Ltd – Enstra Mill, Springs, South Africa: Project leader for the drafting of the motivation for the extension of the Sappi Enstra Landfill Site. The project involved the development of a revised landform by the Jones & Wagener's engineers, as well as input by Kobus Otto and Associates (2011).

Manganese Metal Company (MMC), Nelspruit, South Africa: Project manager for the remediation and closure of the informal Pappas Quarry hazardous waste disposal site. Tasks involved the upgrading of the groundwater model, interim capping of the site, Basic Assessment for the site and compilation of the licence application report for closure (2008 – 2009).

Sappi Kraft Ltd - Ngodwana Mill, Nelspruit, South Africa: Developed the final landform and closure design for the Macrodump waste disposal facility in 1994/5 (Jarrod Ball & Associates). A motivation for the permitting of the site was compiled as part of the final landform design. Whilst employed by Golder Associates, fulfilled the role as project manager for the multi-disciplinary team involved in the extension of the Macrodump (2009 – 2010).

Vanchem Vanadium Products (Pty) Ltd (VVP), eMalahleni (Witbank), South Africa: Project manager for the identification and evaluation of candidate landfill sites, environmental impact assessment, preliminary and detailed design, and authorisation of the new calcine hazardous waste disposal facility for VVP. In order to evaluate the long term performance of the liner system, source-pathway-receptor (SPR) modelling was undertaken as part of the feasibility study phase of the project (2007 to 2009).

Simunye Sugar Estate, Simunye, Swaziland: Identified, conducted an EIA and permitted a new waste disposal facility for the Simunye Sugar Estate in Swaziland. It involved the initial evaluation of the

existing sites with a view to upgrading them. Public consultation was also undertaken as part of this project.

Sappi Novobord Ltd: White River Plant White River, South Africa: Investigated and compiled the permit application report with a view to closure of the Roodewal landfill site in association with other team members of Jarrod Ball & Associates cc.

Lekoa Vaal Metropolitan Council: Boipatong Vanderbijlpark, South Africa: Investigated and developed a remedial design and operating plan for the Boipatong landfill site. The landfill was remediated to minimise the negative public and environmental impacts it had been causing. The landfill operation was upgraded with a view to closure in accordance with acceptable landfill operating practices, while at the same time accommodating the operations of a large number of informal waste salvagers on the site. The needs of the local communities, industries and authorities have been taken into account by means of a Public Consultation Programme. The landfill was also audited on a regular basis after remediation.

Transvaal Sugar Limited: Komati Mill Komatipoort, South Africa: The project entailed the investigation, permitting, development and commissioning of the new Komati Mill landfill site (1994). It included the formulation of an operational and end-use plan. The project involved other members of Jarrod Ball & Associates cc. More recently involved in the auditing of the landfill on a regular basis with other members of Golder Associates Africa and Jones & Wagener (2012).

Kynoch Fertilizer (Pty) Limited Potchefstroom, South Africa: Project manager of the multi-disciplinary team involved in the investigation, environmental impact assessment, public consultation and permitting of Kynoch Fertilizers' hazardous gypsum tailings storage facility in association with Africon, AEMS, Jones & Wagener and Mc Trev Consultancy.

Kynoch Fertilizers (Pty) Ltd, South Africa: Project leader for site remediation investigation projects at Kynoch Fertilizer's Potchefstroom Factory and fertilizer depots in various locations in South Africa.

Impala Platinum Limited Rustenburg, South Africa: Project leader for the investigation, environmental scoping, environmental management plan and permitting of a new landfill site to serve Impala Platinum's Rustenburg Mine complex and the Royal Bafokeng Nation. Work was conducted in association with Mc Trev Consultancy, Groundwater Consulting Services and others.

Thohoyandou Transitional Local Council, Thohoyandou, South Africa: Responsible for the environmental scoping and permitting of the informal Thohoyandou landfill site (in association with Africon and Mc Trev Consultancy).

Delta EMD (Pty) Ltd Nelspruit, South Africa: Responsible for the application for an exemption in terms of Section 20(1) of the Environment Conservation Act for Delta EMD's hazardous waste Residue Treatment Facility. Currently involved in the annual audit of the treatment facility and usage of the treated residue.

Waste Disposal Strategies, Systems and Procedures:

Eskom Holdings SOC, Medupi Power Station, Lephalale: Project leader for the development of an IWMP for the construction phase of the power station. The project is carried out in association with Kobus Otto and Associates (2010 – 2012).

Lonmin Platinum Group, South Africa: Project leader for the development of an IWMP for the mining company's Marikana and Brakpan operations. The project is carried out in association with Kobus Otto and Associates (2011 – 2013).

Optimum Colliery, Hendrina, South Africa: Task manager for the investigations and evaluations into alternative disposal options for mine water treatment plant sludges containing gypsum (2009).

Lekoa Vaal Metropolitan Council Vanderbijlpark, South Africa: Developed a Regional Waste Disposal Strategy for the Lekoa Vaal Region. This included a status quo analysis in which the current and future waste streams were determined and the existing landfill sites were evaluated with a view to determining future disposal needs. The status quo was followed by the identification of candidate landfill

sites, the development of a waste disposal strategy and a Feasibility Study and Environmental Scoping of the best candidate landfill site.

Impala Platinum Limited Rustenburg, South Africa: Developed a waste management policy and waste management procedures for various waste types for Impala Platinum's Rustenburg Mine Complex. This was followed by the drafting of a detailed landfill operating plan for Impala Platinum's new waste disposal facility.

Gauteng Department of Agriculture, Conservation & Environment Johannesburg, South Africa: guideline document was developed for the development of IWMPs for usage by local authorities in Gauteng in association with other members of Jarrod Ball & Associates cc and other sub-consultants.

Bojanala Platinum District Municipality Rustenburg, South Africa: Assisted with the development of a strategic Integrated Waste Management Plan (IWMP) for the district municipality in association with other members of Jarrod Ball & Associates cc.

Rustenburg Local Municipality Rustenburg, South Africa: Assisted with the development of an IWMP for the municipality in association with other members of Jarrod Ball & Associates cc.

Mangaung Municipality, Bloemfontein, South Africa: Service standards for the municipality's waste disposal facilities were developed. The standards are used for the evaluation of contractors operating the waste disposal sites. The project involved the upgrading of waste management and disposal practices for the municipality. The project was carried out in association with other consultants.

Identification and Evaluation of Waste Disposal Sites:

COWI, Viet Tri, Vietnam: Assisted with the evaluation of a candidate landfill site earmarked for the development of a hazardous waste disposal facility in Phu Tho Province, Vietnam in association with COWI (2004). Developed a scope of work for the field investigations and design of the proposed facility.

Sappi Ngodwana Mill Nelspruit, South Africa: Identified and evaluated candidate landfill sites to serve the paper mill, associated infrastructure and residential areas. The project was conducted in association with other members of Jarrod Ball & Associates.

Southern District Council Klerksdorp, South Africa: The project involved the identification and evaluation of candidate landfill sites to serve the greater Klerksdorp, Orkney, Stilfontein area.

Rustenburg Local Municipality Rustenburg, South Africa: The project commenced with a pre-feasibility study of a candidate site identified by other consultants. This was followed by the identification and evaluation of additional candidate landfill sites in order to identify the most favourable site. The most favourable site was subjected to a feasibility study and environmental scoping exercise. The project was conducted in association with other members of Jarrod Ball & Associates and VAPI Consulting. The favoured site was successfully licensed by Golder Associates Africa in 2012.

Auditing and status quo analysis:

Sappi Southern Africa (Pty) Ltd, Enstra Mill: Conducted a due diligence assessment of the solid waste disposal site of the Sappi Enstra Mill (2015).

Lonmin Platinum: Marikana: Compliance audit of hazardous waste storage facility and two sewage works (2013, 2015).

Sasol Synfuels – Secunda: Compliance audit of the Waste Ash Disposal facility with other members of Jones & Wagener (2010 to 2012).

Tauw: Conducted due diligence audits for various clients of Tauw with interests in South Africa (2010 - 2016).

Mondi Kraft Ltd - Piet Retief Mill, Piet Retief, South Africa: The operation of the Mills' new waste disposal facility has been evaluated for a number of years. It included the interpretation of the results obtained from the ground and surface water monitoring system. A groundwater evaluation was carried out in 2012 as part of the motivation for the envisaged expansion of the site.

Northam Platinum Mine Thabazimbi, South Africa: Audited the implementation of the Northam Platinum Mine's Environmental Management Programme (EMPR) on an annual basis with other members of the Golder Associates Africa. Audited the environmental compliance of Northam Platinum Mine's waste disposal facility.

EnviroServ (Pty) Limited Springs & Johannesburg, South Africa: Audited the Margolis and Holfontein hazardous waste disposal facilities for a number of years in association with other members of Jarrod Ball & Associates and Golder Associates Africa in order to verify compliance with legal requirements.

MOZAL Maputo, Mozambique: Conducted an environmental due diligence audit of Metlite, a company that processes dross waste obtained from MOZAL in order to produce material for, inter alia, the explosives industry.

Johnson Matthey Germiston, South Africa: Conducted environmental due diligence audits of the company's waste management contractors in order to establish compliance with legal requirements of these companies.

Hillside Aluminium Smelter (BHP Billiton) Richards Bay, South Africa: Conducted an audit of the smelter's waste management system in order to identify shortfalls in the system. The audit was followed with the development of a waste management training manual. The project was carried out in association with other members of Jarrod Ball & Associates cc.

Chemical and Allied Industries Association (CAIA) Johannesburg, South Africa: Assisted with the development of a uniform hazardous waste management audit protocols for the Chemical and Allied Industries Association (CAIA) in association with Wiechers Environmental.

Municipal Infrastructure Investment Unit (MIU), Thohoyandou, South Africa: Conducted a status quo analysis of the Thohoyandou Transitional Local Council's sewage water treatment and waste disposal facilities in order to establish remediation requirements, such as upgrading of the works, and organisational and training requirements.

Royal Swaziland Sugar Corporation Simunye, Swaziland: Conducted a status quo analysis of the sugar estate and mills' sewage and effluent water treatment and waste disposal facilities in order to identify environmental impacts and the need for upgrading the facilities.

ESKOM Kriel, South Africa: Conducted an audit of the operating standard of the Kriel Power Station's sewage treatment works to, inter alia, establish compliance with the Water Act's legal requirements.

Gauteng Department of Agriculture, Conservation & Environment Johannesburg South Africa: Developed a landfill evaluation pro-forma for use by government officials when inspecting and evaluating waste disposal facilities.

Waste Assessments and Classifications, Geochemical Assessments and Hazard Ratings of Industrial Wastes, and Mine Residues and Deposits

Eskom Holdings SOC: Majuba Power Station: Conducted waste and geochemical assessments of coal and coal stockpile leachate (2015).

Aquatico: Conducted various waste assessments for Lonmin Platinum (2015).

South32 South Africa Energy Coal Limited: Conducted waste and geochemical assessments of various overburden, coal discard and fine coal stockpiles at the Vandyksdrift operations in Mpumalanga (2014).

Sasol Synfuels, Secunda South Africa: Assessment ash water, ash and seepage in terms of the National Environmental Management: Waste Act waste assessment regulations (2014).

Iliso Consulting (Pty) Ltd, Centurion, South Africa: Conducted a classification of the waste water sludge from Bloemwater's Rustfontein water treatment works in terms of the draft DEA and Minimum Requirements classification procedures, as well as the Water Research Commission's *Guidelines for the Utilisation and Disposal of Wastewater Sludge* (2012).

Sasol Synfuels, Secunda South Africa: Conducted waste classifications of fine and paste ash samples in terms of the draft DEA and Minimum Requirements classification procedures (2012).

Zitholele Consulting (Pty) Ltd, Midrand, South Africa: Conducted the classification of the new ash disposal facility for Eskom's Camden Power Station. The draft DEA and Minimum Requirements classification procedures were used in this project (2011).

Sappi Kraft Ltd – Enstra Mill, Springs, South Africa: Conduct a risk profile of the Sappi Enstra landfill site leachate with a view to reclassifying the landfill site (2011).

Exxaro, Pretoria, South Africa: Conduct a classification of a ferrous metal slag with the view to using the slag in cement based products. Both the Minimum Requirements and the draft Department of Environmental Affairs' waste classification processes were used (2011).

Anglo Platinum: Polokwane Smelter: Conducted a waste risk profile of slag with a view to reclassifying the waste disposal facility of the smelter (2010).

EnviroServ (Pty) Ltd: Commented on draft waste management regulations and waste classifications systems for client and presented comments to the Department of Environmental Affairs (2010).

North West Medical Waste, Klerksdorp, South Africa: Performed a hazard rating in terms of the South African hazardous waste classification system on the ash from the medical waste incinerator.

Sappi Fine Paper, Ngodwana Mill Ngodwana, South Africa: Conducted a number of hazard ratings on various waste stream originating from the paper mill. It was possible to delist a number of these waste streams and obtain permission for down-stream uses thereof.

Technic Services, Luanda, Angola: Hazard rated a number of the waste types to be disposed of on Technic Services' new landfill site with a view to establishing the liner design requirements.

Cape Metropolitan Council Cape Town, South Africa: Hazard rated sewage sludges originating from a number of sewage works. The project was undertaken in association with the Cape Biosolids Consultants, a consortium of consultants who investigated various aspects of sewage sludge management.

Delta EMD (Pty) Ltd, Nelspruit, South Africa: Investigated the alternative uses and environmental consequences of a treated metallurgical residue from Delta EMD. Project conducted in association with Environmental and Chemical Consultants and Golder Associates Africa.

Delta EMD (Pty) Ltd, Nelspruit, South Africa: Responsible for the environmental evaluation of the use of a treated residue in road building applications, which led to the authorities granting permission for the use of the treated material in capped road applications.

Waste Management Training

Department of Environmental Affairs, South Africa: Developed and presented a one day course on aspects of landfill performance evaluation, environmental monitoring and auditing. The training target group consisted of Control Environmental Officers of the National and Provincial Departments dealing with waste management matters (2011).

Chemical and Allied Industries Association (CAIA) Johannesburg, South Africa: Presented a short training course on the licensing procedure for waste management facilities in terms of the requirements of the National Environmental Management: Waste Act (NEM:WA) and the National Environmental Management Act (NEMA) (2010).

Mondi Forests, Piet Retief, South Africa: Developed and presented a short course in waste management for officials of Mondi Piet Retief's Forestry Division.

Swaziland Environment Authority, Mandini, Swaziland: Developed and presented an integrated waste management training course for the Swaziland Environment Authority. The course included practical excursions and exercises. The course was developed in association with other members of Jarrod Ball & Associates.

North West University's: Potchefstroom Campus, Potchefstroom, South Africa: Developed a five day course in Integrated Waste Management and Planning for the University's Centre for Environmental Management (1996 – 2007).

Basel Convention, Nairobi, Kenya: Lectured on aspects of hazardous waste management to Kenyan Government officials and the private sector in Nairobi. This formed part of the Basel Convention initiative to develop a training centre in hazardous waste management for the English speaking countries in Africa.

COWI, Viet Tri, Vietnam: Lectured on aspects of hazardous waste management to industry employees and government officials in Viet Tri, Vietnam, in association with other members of COWI (2004).

Other:

TSB Komati, Mpumalanga, South Africa: Annual evaluation of the ground water status of the sugar mill's licensed waste disposal facility as part of the annual external audit (2010 – current).

Sappi Fine Papers, Springs, South Africa: Annual evaluation of the ground and surface water status of Sappi Enstra's permitted waste disposal facilities and drafting of the interpretation report (2011, 2012, 2015).

Northam Platinum, Thabazimbi, South Africa: Registered the mine's water uses in terms of the provisions of the National Water Act.

Manganese Metal Company (MMC), Nelspruit, South Africa: Peer reviewed the consulting work carried out for the identification, investigation and permitting of MMC's new hazardous landfill site at Kingston Vale, Nelspruit. Project was carried out in association with others of Jarrod Ball & Associates. As employee of Golder Associates Africa involved in aspects of liner performance monitoring and evaluation at the Kingston Vale landfill site.

Gauteng Department of Agriculture, Conservation & Environment, Johannesburg, South Africa: Developed and conducted performance monitoring of the multi-media bin system deployed at a number of the World Summit on Sustainable Development venues in association with Sue Posnik and Associates and others.

Golder Associates SrL, Italy: Project leader for desktop study on the market potential for landfill gas (LFG) clean development mechanism (CDM) projects in South Africa for Asja Ambiente Italia (Asja). Asja is an Italian based firm with extensive experience in the landfill gas to energy industry. The study was commissioned by Mr F. Belfiore of Golder Europe.

Agresu, Maputo, Mozambique: Co-ordinated the Phase 1 evaluation of landfill gas (LFG) generation at Maputo's Hulene landfill site. The project involved the siting of three gas monitoring wells, subsequent LFG monitoring and data collection. LFG modelling was undertaken by Golder's UK team using the Gassim2 model (2009).

Summary of other Experience / Publications

Author and co-author on a number of papers pertaining to integrated catchment management and landfill remediation

Declaration

I confirm that the above CV is an accurate description of my experience and qualifications.



Signature of Staff Member

18 January 2017

Date