

Environmental Impact Assessment (EIA) for the
Proposed Construction, Operation and
Decommissioning of a Sea Water Reverse Osmosis
Plant and Associated Infrastructure Proposed at
Lovu on the KwaZulu-Natal South Coast

DRAFT EIA REPORT

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Appendix A:
Curriculum Vitae of EAP and
Specialists, and Specialist
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CV OF PAUL LOCHNER – PROJECT LEADER AND TECHNICAL REVIEWER

| | |
|------------------|---|
| Name of firm | CSIR |
| Name of staff | Paul Andrew Lochner |
| Profession | Environmental Assessment and Management |
| Position in firm | Project Leader in Environmental Assessment & Management |
| Date of birth | 13 June 1969 |
| Years with firm | 19 years |
| Nationality | South African |

Biographical Sketch

Paul Lochner commenced work at CSIR in 1992, after completing a degree in Civil Engineering and a Masters in Environmental Science, both at the University of Cape Town. His initial work at CSIR focused on sediment dynamics and soft engineering applications in the coastal zone, in particular, beach and dune management. He conducted several shoreline erosion analyses and prepared coastal zone management plans for beaches. He also prepared wetland management plans.

As the market for environmental assessment work grew, he led Environmental Impact Assessments (EIAs), in particular for coastal resort developments and large-scale industrial developments located on the coast; and Environmental Management Plans (EMPs), in particular for wetlands, estuaries and coastal developments. He has also been involved in researching and applying higher-level approaches to environmental assessment and management, such as Strategic Environmental Assessment (SEA). In 1998 and 1999, he coordinated the SEA research programme within the CSIR, and was a lead author of the Guideline Document for SEA in South Africa, published jointly by CSIR and the national Department of Environmental Affairs and Tourism in February 2000.

In 1999 and 2000, he was the project manager for the legal, institutional, policy, financial and socio-economic component of the Cape Action Plan for the Environment ("CAPE"), a large-scale multi-disciplinary study to ensure the sustainable conservation of the Cape Floral Kingdom. This was funded by the Global Environmental Fund (GEF) and prepared for WWF-South Africa. The study required extensive stakeholder interaction, in particular with government institutions, leading to the development of a Strategy and Action Plan for regional conservation.

In July 2003, he was certified as an Environmental Assessment Practitioner by the Interim Certification Board for Environmental Assessment Practitioners of South Africa. In 2004 he was lead author of the *Overview of IEM* document in the updated Integrated Environmental Management (IEM) Information Series published by national Department of Environmental Affairs and Tourism (DEAT). In 2004-2005 he was project manager for an Environmental and Social Impact Assessment (ESIA) conducted for a bauxite mine and alumina refinery in the Komi Republic (Russia), prepared in accordance with World Bank and EU policies, guidelines and standards.

He has authored several guidelines for government. In 2004, he was lead author of the *Overview of IEM* document in the updated Integrated Environmental Management (IEM) Information Series published by national Department of Environmental Affairs and Tourism (DEAT). In 2005, he was part of the CSIR team that prepared the series entitled *Guidelines for involving specialists in EIA processes* for the Western Cape Department of Environmental Affairs and Development Planning (DEADP); and he authored the *Guideline for Environmental Management Plans* published by Western Cape government in 2005. In 2006-2007, he worked closely with the (then) Department of Minerals and Energy (DME) of South Africa to prepare a Guideline for Scoping, Environmental Impact Assessment and Environmental Management Plans for mining in South Africa.

Over the past 20 years has been closely involved with several environmental studies for industrial and port-related projects in Coega Industrial Development Zone (IDZ), near Port Elizabeth. This included the SEA for the establishment of the Coega IDZ in 1996/7, an EIA and EMP for a proposed aluminium smelter in 2002/3, and assistance with environmental permit applications for air, water and waste. At the Coega IDZ and port, he has also conducted environmental assessments for port development, LNG storage and a combined cycle gas turbine power plant, manganese export, rail development, marine pipelines, and wind energy projects.

Since 2009, he has undertaken numerous EIAs for the renewable energy sector, in particular for wind and solar photovoltaic energy projects. In these EIAs, he has been project leader and integrated the specialist findings from a range of specialist disciplines. In 2009, he led the EIA for a desalination plant in Namibia, as well as several EIAs for wind energy facilities in South Africa. He is currently project leader on two SEAs that are being undertaken for national DEA. These SEAs are to support the implementation of the Strategic Integrated Projects (SIPs) that are being promoted by the Presidential Infrastructure Coordinating Committee (PICC). The SEA for Wind and Solar Photovoltaic Energy for South Africa was completed in March 2015 and the SEA for electricity grid infrastructure commenced January 2014.

Since 2009, Paul has been the manager of the Environmental Management Services (EMS) group within CSIR. This group currently consists of approximately 20 environmental assessment practitioners and a group assistant, with offices in Stellenbosch and Durban. EMS focuses on conducting complex environmental studies in challenging environments, such as remote and data poor regions in Africa (e.g. Cameroon, Gabon, Angola, Namibia and Ethiopia). We also specialise in environmental studies for emerging and innovative technologies, drawing on research and applied scientific expertise within CSIR. Our role is to assist in ensuring the sustainability of projects in terms of

environmental and social criteria, by providing a range of environmental services that extend across the project lifecycle, from the pre-feasibility stage through to feasibility, commissioning, operations and closure. We provide this service to government, international agencies, private sector and non-government organisations.

| | | | |
|-----------------------------|------|--|-------------------------|
| University Education | 1990 | B.Sc. Civil Engineering (awarded with Honours) | University of Cape Town |
| | 1992 | M. Phil. Environmental Science | University of Cape Town |

Employment Record *January 1992 to June 1992:* Completed Masters thesis, working in conjunction with the Environmental Evaluation Unit at the University of Cape Town. The thesis investigated the potential future ecological and socio-economic impacts resulting from the closure of a large diamond mining operation, and developed actions to mitigate these impacts.

October 1992 to present: Employed by the CSIR in Stellenbosch. Involved in coastal engineering studies; and various forms of environmental assessment and management studies. (A track record of experience is listed below).

| | |
|--|--|
| Professional Registration and Involvement in Committees | Registered Environmental Assessment Practitioner of South Africa since July 2003 |
| | Committee Member of Western Cape Branch of the International Association for Impact Assessment (IAIA) for 1996 to 1999 |
| | Chairperson of Western Cape Branch of IAIA and member of the national IAIA committee the Western for 1997 to 1998 |
| | Chairperson of Blouville Intaka Island Environmental Monitoring Committee at Century City, Cape Town (from 1995 to present). This EMC oversees management of a multi-purpose wetland and waterbodies & canals within a modern urban development. |
| | Member of International Association for Impact Assessment (IAIA) |

Experience record The following table presents an abridged list of projects that Paul Lochner has been involved in, indicating his role in each project:

| Completion Date | Project Description | Role | Client |
|-------------------------------|---|------------------------------|---|
| <i>In progress</i> | SEA for Shale Gas Development in South Africa | Project co-leader | DEA |
| <i>In progress</i> | SEA for the development of Electrical Grid Infrastructure for South Africa | Project leader | DEA |
| <i>In progress</i> | EIA for the 75 MW x 12 solar photovoltaic energy projects near Dealesville, Free State | Project Leader | Mainstream Renewable Power SA |
| 2014 - 2015 | SEA of planning for the far south Cape Peninsula | Project Leader | City of Cape Town |
| 2013 - 2015 | EIA for the Ishwati Emoyeni 140 MW wind energy project and supporting electrical infrastructure near Murraysburg, Western Cape | Project Leader | Windlab |
| 2013 - 2015 | EIA for the Saldanha marine outfall pipeline | Project Leader | Frontier Saldanha Utilities |
| 2012 - 2015 | SEA for identification of renewable energy zones for wind and solar PV projects in South Africa | Project leader | DEA |
| 2012 - 2013 | Environmental Screening Study for a desalination plant for the City of Cape Town | Project leader | City of Cape Town & WorleyParsons |
| 2012 - 2013 | EIA for LNG Import to the Mossel Bay Gas-to-Liquid refinery (stopped end of Scoping) | Project leader | PetroSA |
| 2012 - 2013 | EIA for the desalination plant for the Saldanha area | Project leader | West Coast District Municipality & WorleyParsons |
| 2012 - 2013 | EIA for the manganese export terminal at the Port of Ngqura and Coega IDZ | Project leader | Transnet |
| 2011 - 2012 | EIA for the 100 MW solar photovoltaic project proposed by Mainstream Renewable Power at Blocuso, near Keimoes in the Northern Cape | Project leader | Mainstream Renewable Power |
| 2011 - 2012 | EIA for the 100 MW solar photovoltaic project proposed by Mainstream Renewable Power at Roode Kop Farm, near Douglas, in the Northern Cape | Project leader | Mainstream Renewable Power |
| 2011 - 2012 | EIA for the 75 MW solar photovoltaic project proposed by Solaire Direct at GlenThorne , near Bloemfontein in the Free State | Project leader | Solaire Direct |
| 2011 - 2012 | EIA for the 75 MW solar photovoltaic project proposed by SolaireDirect at Valleydora , near Springfontein in the Free State | Project leader | Solaire Direct |
| 2010-2011 | More than 10 Basic Assessments (BAs) for solar photovoltaic projects in the western cape, Northern Cape, Eastern Cape and Free State | Project leader | Various clients including Dutch, German, French and South African companies |
| 2009/2010 | EIA for proposed 180 MW Jeffreys Bay wind energy project , Eastern Cape | Project Leader and co-author | Mainstream Renewable Power South Africa |
| 2009/2010 | Basic Assessment for the national wind Atlas for South Africa | Project leader | SANERI and SA Wind Energy Programme, Dept of Energy |
| 2009/2010 <i>(on hold)</i> | EIA for the proposed Gecko soda plant , Otjivalunda and Arandis, Namibia | Project leader | Gecko, Namibia |

| Completion Date | Project Description | Role | Client |
|------------------------|---|---|--|
| 2009 | EIA for the proposed desalination plant at Swakopmund, Namibia | Project leader | NamWater, Namibia |
| 2009 | EMP for the Operational Phase of the Berg River Dam , Franschhoek, South Africa | Project leader and report co-author | TCTA, South Africa |
| 2009/2010 | EIA for the proposed crude oil refinery at Coega, South Africa | Project leader and lead author | PetroSA, South Africa |
| 2008 | Environmental Risk Review for proposed LNG/CNG import to Mossel Bay, South Africa | Project leader and lead author | PetroSA, South Africa |
| 2008 | Review of the Business Plan for catchment management for the Berg Water Dam Project, Franschhoek, South Africa | Project reviewer and co-author | TCTA, South Africa |
| 2007 – 2010 | EIA for proposed Jacobsbaai Tortoise Reserve eco-development , Saldanha, Western Cape | Project Leader and co-author | Jacobsbaai Tortoise Reserve (Pty) Ltd |
| 2007 – 2010 | Independent reviewer for the EIA proposed Amanzi lifestyle development, Port Elizabeth | Independent reviewer appointed to advise EAP | Public Process Consultants and Pam Golding |
| 2007 – 2008 | EIA for proposed 18 MW Kouga wind energy project , Eastern Cape | Project Leader and co-author | Genesis Eco-Energy |
| 2007 | Review of EIA for the proposed Hanglip Eco-Development , Plettenberg Bay, Western Cape | Co-author of review of EIA, undertaken on behalf of DEADP | Dept of Environmental Affairs & Development Planning, Western Cape |
| 2006-2007 | Scoping phase for the EIA for the proposed Coega LNG-to-Power Project at the Port of Ngqura, Coega IDZ | Project Leader and co-author | Eskom and iGas |
| 2006-2007 | Guideline for Scoping, Environmental Impact Assessment and Environmental Management Plans for mining in South Africa | Project leader and co-author | Dept of Minerals and Energy (DME), South Africa |
| 2006 | Environmental Impact Assessment (EIA) for the extension of the Port of Ngqura, Eastern Cape | Project Leader and co-author | Transnet |
| 2006 | Integrating Sustainability Into Strategy: Handbook (Version 1) | Project Leader and co-author | CSIR (STEP research report) |
| 2005 | Technology Review for the proposed aluminium smelter at Coega, South Africa | Project Leader and lead author | Alcan, Canada |
| 2005 | Environmental and Social Impact Assessment (ESIA) report for the proposed alumina refinery near Sosnogorsk, Komi Republic, Russia | Project manager and co-author | Komi Aluminium, Russia, IFC, EBRD |
| 2005 | Guideline for Environmental Management Plans (EMPs) for the Western Cape province, including conducting a training course for provincial government | Author | DEADP, Western Cape |
| 2005 | Guideline for the review of specialist studies undertaken as part of environmental assessments | Member of Steering Committee and project facilitator | DEADP, Western Cape |
| 2004 | Review of Strategic Management Plan for Table Mountain National Park (2001-2004) | Reviewer and co-author | South African National Parks |
| 2004 | Strategic Needs Assessment Process for mainstreaming sustainable development into business operations | Researcher and co-author | CSIR (internal research) |
| 2004 | Environmental Monitoring Committees booklet in the IEM Information Series for DEAT | Contributing author | DEAT |
| 2004 | Overview of Integrated Environmental Management (IEM) booklet in the IEM Information Series | Lead author and researcher | DEAT |
| 2003 | Environmental Screening Study for gas power station, South Africa | Project Manager and lead author | Eskom, iGas and Shell |
| 2003 | Environmental Management Programme (EMP) Framework for the proposed Coega Aluminium Smelter; and assistance with preparing permit and licence applications | Project Manager and lead author | Pechiney, France |
| 2003 | Environmental Management Plan for the Operational Phase of the wetlands and canals at Century City, Cape Town | Project leader and lead author | Century City Property Owners' Association |
| 2002 | Environmental Impact Assessment for the proposed Pechiney aluminium smelter at Coega, South Africa | Project Manager and lead author | Pechiney, France |
| 2002 - 2003 | Research project: Ecological impact of large-scale groundwater abstraction on the Table Mountain Group aquifer | Project Manager | Water Research Commission |
| 2002 | Environmental Management Plan for the Eskom Wind Energy Demonstration Facility in the Western Cape | Co-author | Eskom |
| 2001-2002 | Environmental Impact Assessment for the Eskom Wind Energy Demonstration Facility in the Western Cape | Quality control & co-author | Eskom |
| 2001 | Environmental Due Diligence study of four strategic oil storage facilities | Project manager and co-author | SFF Association |

| Completion Date | Project Description | Role | Client |
|-----------------|---|---|--|
| | in South Africa | | |
| 2000 | Cape Action Plan for the Environment: a biodiversity Strategy and Action Plan for the Cape Floral Kingdom - legal, institutional, policy, financial and socio-economic component | Project manager and contributing writer | World Wide Fund for Nature (WWF): South Africa |
| 1999 | Environmental Management Plan for the establishment phase of the wetlands and canals at Century City, Cape Town | Project manager and lead author | Monex Development Company |
| 1999 | Environmental Management Programme for the Thesen Islands development, Knysna | Process design and Co-author | Chris Mulder Associates Inc; Thesen and Co. |
| 1999 | Management Plan for the coastal zone between the Eerste and Lourens River, False Bay, South Africa | Project manager and lead author | Heartland Properties and Somchem (a Division of Denel) |
| 1998 | Environmental Assessment of the Mozal Matola Terminal Development proposed for the Port of Matola, Maputo, Mozambique | Project manager and author. | SNC-Lavalin-EMS |
| 1998 | Strategic Environmental Assessment (SEA) for the Somchem industrial complex at Krantzkop, South Africa | Project manager and co-author | Somchem, a Division of Denel |
| 1997 | Strategic Environmental Assessment (SEA) for the proposed Industrial Development Zone and Harbour at Coega, Port Elizabeth, South Africa | SEA project manager and report writer | Coega IDZ Initiative Section 21 Company |
| 1996 | Environmental Impact Assessment of Development Scenarios for Thesen Island, Knysna, South Africa | Project manager and report writer | Thesen and Co. |
| 1996 | Environmental Impact Assessment of the Management Options for the Blouvllei wetlands, Cape Town | Project manager and report writer | Iico Homes Ltd (now Monex Ltd) |
| 1995 | Environmental Impact Assessment for the Saldanha Steel Project, South Africa | Report writing and management of specialist studies | Saldanha Steel Project |
| 1994 | Environmental Impact Assessment for the upgrading of resort facilities on Frégate Island, Seychelles | Member of the project management team, co-author, process facilitator | Schneid Israelite and Partners |
| 1994 | Environmental Impact Assessment for exploration drilling in offshore Area 2815, Namibia | Project manager and co-author | Chevron Overseas (Namibia) Limited |
| 1994 | Management Plan for the Rietvllei Wetland Reserve, Cape Town | Project manager and lead author | Southern African Nature Foundation (now WWF-SA) |
| 1993 | Beach management plan for Stilbaai beachfront and dunes, South Africa | Project manager and lead author | Stilbaai Municipality |
| 1993 | Beach and dune management plan for Sedgfield for the beach east of the mouth of the Swartvllei estuary | Project manager and lead author | Nel and De Kock Planners, George |
| 1993 | Coastal Stability analysis and beach management plan for the Table View coastline north of Blaauwberg Road, Cape Town | Project manager and lead author | Milnerton Municipality |

Publication Record A comprehensive list of publications, book chapters and contract reports is available upon request, with a summary provided below. *Publications in journals, peer reviewed conference proceedings and CSIR internal research reports:*

Weaver A, Pope J, Morrison-Saunders A & Lochner P, 2009, Contributing to sustainability as an environmental impact assessment practitioner, *Impact Assessment and Project Appraisal (IAPA)*, 26:2, 91-98. (This paper received the IAPA best paper award for 2009).

Lochner P, 2009: Case study - The role of environmental and social screening in informing the conceptual design and planning of large-scale projects in the pre-feasibility phase, in DBSA, 2009, *What works for us – a South African Country report for tactics, Tools and Methods for Integrating Environment and Development* (A South African Case study in partnership with the IIED), pp 37-38, Midrand, South Africa.

Lochner P, Munster F and Burns M, 2006. Integrating Sustainability into Strategy (ISIS): a process to inform sustainability strategies and frameworks, *In: IAIA South Africa Annual Conference proceedings*, South Africa.

Rossouw N and Lochner P, 2006. Environmental Monitoring Committees (EMCs): purpose, function and structure. *In: IAIA South Africa Annual Conference proceedings*, South Africa.

Munster F and Lochner P, 2006, Integrating Sustainability Into Strategy: Handbook (Version 1) – describing a process to inform sustainability strategies, frameworks and reports, *CSIR Report ENV-S-1 2005-001*, ISBN 0-7988-5560-6, Stellenbosch.

Van Zyl H, de Wit M, Munster F, Lochner P, Gerber G, 2005. Economics in Environmental Impact Assessment: demystifying the theory and practice, *In: Conference Proceedings of the IAIA South Africa 2005 Annual National Conference*. South Africa.

Lochner P, Weaver A, Gelderblom C, Peart R, Sandwith T and Fowkes S, 2003. Aligning the diverse: the development of a biodiversity conservation strategy for the Cape Floristic Region. *Biological Conservation Vol. 112, ISSN: 0006-3207*.

Lochner P, Münster F, Msutu M, Wren S, 2003. The role of stakeholder engagement in the EIA for the Coega Aluminium Smelter. *In: Conference Proceedings of the IAIA South Africa 2003 Annual National Conference. ISBN 1-919891-04-8. South Africa.*

Lochner P, Brooks W, Pesch P & Münster M. 2003, Stakeholder engagement process in the EIA of an aluminium smelter, Published in *Light Metals 2003* (Ed. Paul Crepeau), Published by TMS (the Minerals, Metals & Materials Society), ISBN Number 0-87339-531-X, USA.

Rossouw N, Audouin M, Lochner P, Heather-Clark S and Wiseman K, 2000. Development of strategic environmental assessment in South Africa. *Impact Assessment and Project Appraisal. Vol 18, no. 3, pp 217-223. United Kingdom.*

Lochner P and Fowkes S, 2000. Building partnerships for the conservation of the biodiversity of the Cape Floral Kingdom: experiences and lessons learnt from the Cape Action Plan for the Environment. *In: IAIA-SA Conference Proceedings 2000. South Africa.*

Lochner P and Rossouw N, 1997. The development of an Environmental Management Plan for incorporating a wetland into a large mixed use development: the Century City example. *In: IAIA-SA Conference Proceedings 1997. South Africa.*

**Language
capability**

| | <i>Speaking</i> | <i>Reading</i> | <i>Writing</i> |
|-----------|-----------------|----------------|----------------|
| English | Excellent | Excellent | Excellent |
| Afrikaans | Average | Average | Average |

CV OF ANNICK WALSDORFF - PROJECT MANAGER

Proposed Position: Project Manager
Name of Firm: CSIR
Position in Firm: Principal Consultant
Profession: Chemical Engineer (Environmental Field)
Date of Birth: 21 December 1972
Years with Firm: 6 years
Nationality: Belgian

BIOGRAPHICAL SKETCH

Annick Walsdorff commenced work at Basse Sambre Engineering (Belgium) in 1999, after completing a degree in Chemical Engineering and a Masters in Chemical Engineering. Her initial work at Basse Sambre covered the conception and implementation of turnkey industrial installations for national and international tender documents in the mining, gas/petrol and environmental sectors (incineration, thermolysis, pyrolysis, waste segregation) and the study of their economic feasibility. Her role mainly encompassed plant design and optimisation, dimensioning of equipments, mass and energy balance, data analysis, suppliers management and budgeting for turnkey projects.

In 2001, she accepted a position at the Chemical Engineering Department, University of Stellenbosch as a project engineer and a lecturer. She was responsible for a variety of projects in the environmental field, mainly focusing on the development and implementation of Environmental Management Systems ISO14001 and Cleaner Production processes. Annick was also responsible for the Environmental Engineering course for final year students during the 2001 and 2002 academic year.

In 2004, she joined Techpros Realising Solutions in Stellenbosch as a project and system manager. Her main responsibilities within Techpros included consulting in the implementation and maintenance of integrated business risks based management systems (self declared and standardised systems – ISO14001, ISO9001, HACCP - with an emphasis on Environmental Management Systems) in various sectors. She was the project manager and main role player in the implementation of ISO14001 for two main multi-sites in South Africa (10 wineries in the Franschhoek Valley and 12 Medi-Clinic hospitals located throughout the country).

At the end of 2005, Annick joined Environmental Resources Management Southern Africa (ERM) where she has mainly been involved in a range of environmental and due diligence audits as well as legal register review. Annick has also been extensively involved in Quantified Risk Assessment in terms of the MHI Regulations, 2001 while working at ERM. She has developed extensive project management skills and has been exposed to a multitude of environmental issues pertinent to South Africa and other African countries (Central and West Africa) in a variety of industry sectors.

Since joining the CSIR in October 2008, Annick has been involved in the drafting of an Environmental Management Plan for the operation phase of the Berg River Dam (includes a new dam for water supply to the city of Cape Town), in the environmental screening for a new coastal manganese export terminal and managing a number of Environmental Impact Assessments projects in South Africa, Namibia, Cameroon and Gabon. Her role within the CSIR Consulting and Analytical Services team primarily focus on the management of large EIAs and risk management projects.

KEY EXPERIENCE RECORD

In the last 10 years, Annick has been mainly involved with project management (including contract and budget management, resources management, planning, invoicing, client communication etc.) related to environmental compliance auditing (environmental due diligence, regulatory and corporate standards assessments), the development and implementation of environmental management systems aspects as well as the undertaking of quantified risk assessment of Major Hazard Installations (technical and project management aspects).

The following table presents an abridged list of projects that Annick has been involved in, indicating her role in each project:

| Date | Project description | Role | Client |
|---|--|---------------------------------|---------------------------|
| Environmental Impact Assessments, Environmental Management Plans and Environmental Screening Studies | | | |
| 2014 | Environmental screening study: proposed LNG facility at Saldanha and associated gas pipeline infrastructure to Atlantis, Cape Town, Paarl and Wellington. | Project manager and coordinator | Western Cape Government |
| 2014 | Environmental screening study: proposed LNG facility at Saldanha and associated gas pipeline infrastructure to Atlantis and Mossel Bay. | Project manager and coordinator | Confidential |
| 2012-2014 | Environmental Impact Assessment: Proposed Manganese Ore Export Facility, Port of Ngqura. | Project manager and coordinator | Transnet |
| 2012-2013 | Environmental Impact Assessment: Exploration drilling in the Kiarsseny Marin Block, Libreville, Gabon | Project manager and coordinator | Tullow |
| 2013 | Environmental Impact Assessment: Expansion of a natural gas pipeline network within Douala city, Cameroon | Project manager and coordinator | Rodeo Development Limited |
| 2012-on hold | Environmental Impact Assessment: 3D seismic survey in the Kiarsseny Marin Block, Libreville, Gabon | Project manager and coordinator | Tullow |
| 2012 | Feasibility level Oil spill risk analysis: Analysis of oil spill risks associated with | Project manager and | MOGS |

| Date | Project description | Role | Client |
|---|--|---|--------------------|
| | crude oil transfers between a proposed tank farm at Saldanha bay and ships | coordinator | |
| 2010 - 2011 | Environmental Impact Assessment: Phase 1A: The establishment of a mining process plant and the extraction of a 20 000 ton ore sample from the Beniomi Plateau, Franceville; Phase 1B: The development of a 300 000 ton/annum mining operation | Project manager and coordinator | BHP Billiton Gabon |
| 2010 | Environmental screening study: Proposed gas pipeline on the West Coast. <ul style="list-style-type: none"> Project manager, ongoing liaison with specialists and the client. Management (including sub-consultancy agreements, confirmation of scope of work, work schedule and sharing of information) and review of specialist studies (vegetation and archaeological study). Management and integrative writing of the Environmental Screening Report. Coordination of field trip. | Project manager and coordinator | iGas |
| 2009 - 2010 | Environmental Impact Assessment: Exploration drilling in the Azobe Block, Port Gentil, Gabon | Project manager and co-author | Tullow Oil Gabon |
| 2009 - 2010 | Feasibility level Oil spill response analysis - Coega Refinery: <ul style="list-style-type: none"> Project manager, ongoing liaison with specialists and the client. Management (including sub-consultancy agreements, confirmation of scope of work, work schedules and sharing of information) and review of specialist studies (legal review, hazard analysis, oil spill modelling). Coordination and facilitation of a workshop involving relevant competent authorities and key stakeholders (DEA (MCM), SAMSA, National Port Authorities, SANParks, Mandela Metropolitan Municipality, industry representatives). Management and integrative writing of the Feasibility level oil spill response analysis. | Project manager and coordinator | PetroSA |
| 2009 | Environmental Impact Assessment for a proposed exploration drilling well in Gabon, West Africa. <ul style="list-style-type: none"> Project manager, ongoing liaison with specialists and the client. Management (including sub-consultancy agreements, confirmation of scope of work, work schedules and sharing of information) and review of specialist studies (socio-economic, oil spill modelling), Management and integrative writing of the Environmental Impact Report and Environmental Management Plan. Coordination of field trip - Management of in-country logistics and fieldwork-related activities. French interpretation and report translation editing. Presentation of the Environmental Impact Assessment to the competent authorities in Libreville, Gabon (Direction Générale de l'Environnement). Discussion and follow up of comments from the DGE. | Project manager and coordinator | Tullow Oil Gabon |
| 2009 | Environmental Impact Assessment for a proposed desalination plant near Swakopmund. <ul style="list-style-type: none"> Project manager, ongoing liaison with specialists (10 specialists) and client Management and review of 10 specialist studies, including on going liaison with specialists and sharing of technical information. Management and integrative writing of most of the sections of the Environmental Impact Report and Environmental Management Plan. | Coordination and management of specialist studies | NamWater |
| 2008 - 2009 | Environmental Management Program for the Berg River Dam in Franschhoek. <ul style="list-style-type: none"> Project manager, ongoing liaison with specialists and the client. Management (including sub-consultancy agreements, scope of work, invoicing) and review of specialists inputs to the EMP. Coordination of workshops attended by specialists and the client. Management and integrative writing of the Environmental Management Plan. | Project manager and coordinator | TCTA |
| Major Hazard Installation quantitative risk assessments and major risk screening | | | |
| 2008 | A Major Hazard Installation QRA for crude oil, alcohol, diesel, petrol and derivatives Terminal , including the storage of crude oil, alcohol, petrol, diesel and derivatives and associated operations. | Project manager | Confidential |
| 2007 - 2008 | Major Accident Risk Assessments , for five petroleum products depots/facilities (two in South Africa and three in Central Africa). | Project manager | Confidential |
| 2007 - 2008 | Major Risk screening assessments for more than 30 fuel depots in South Africa and consisted in the assessment of the consequences associated with worst case failure scenarios. | Project Manager and co-author | Confidential |
| 2006 - 2008 | Major Hazard Installation QRAs , for proposed and existing flammable and toxic installations, i.e. LPG, nitrogen, hydrogen and carbon dioxide storage installation. | Project Manager and co-author | Afrox |
| 2007 | A Major Hazard Installation QRA for a proposed diesel and lubricants | Project Manager and co- | Shell |

| Date | Project description | Role | Client |
|---|---|---|--------------------------|
| | installation. | author | |
| 2005 | <p>Major Hazardous Installation (MHI) QRA for an LPG installation at a beverage manufacturing site, as per MHI Regulations, 2001.</p> <p>For the above risk assessment projects, roles included:</p> <ul style="list-style-type: none"> • Project manager (including contract sign-off, budget and resources management, invoicing) and ongoing liaison with the client and members of team. • Review of technical inputs/outputs of team members. • Management and writing of report | Project Manager and co-author | Confidential |
| Environmental Management Systems (ISO14001), Environmental and corporate standards compliance programs | | | |
| 2003-2005 | <p>A multi-site ISO 14001 implementation at 8 hospitals of the Medi-Clinic Group. ISO 14001 system implementation as part of the Medi-Clinic Group strategy to manage its environmental issues. This project encompassed development and full implementation of an ISO 14001 Management system. Integration with current systems and improved subcontractor management were additional aspects of the project.</p> | Project Manager and co-author | Medi-Clinic Group |
| 2002-2003 | <p>A multi-site ISO 14001 implementation for the Vignerons de Franschhoek ECO Association (nine wineries and a water bottling plant). Project included development and full implementation of an Environmental Management System (ISO 14001) for all 10 organizations partaking in the project, including solid waste and water/wastewater management with considerations to cleaner production.</p> | Project Manager and co-author | Vignerons de Franschhoek |
| 2001-2002 | <p>Development of an EMS Implementation Guideline for the Wine industry (Preliminary guide). Compilation of a manual providing the necessary tools for the development and implementation of an EMS at wineries and distilleries. The manual also includes practical considerations for the implementation of an EMS and cleaner production guidelines.</p> | Project Contributor | Wine industry |
| 2006 - 2008 | <p>Environmental Compliance Program: Environmental compliance assessment of client facilities in Central and Southern African countries, including Chad, Congo, South Africa, Gabon and Mauritania.</p> <p>This program includes a site environmental compliance assessment and the development of an environmental legal summary and associated protocol.</p> | Project Manager, lead auditor and co-author | Confidential |
| 2005 - 2008 | <p>Environmental and corporate standards compliance audits. Compliance auditing for a number of beverage industries around Africa, including Southern Africa, DRC, Angola and Namibia.</p> | Project Manager, lead auditor and co-author | Confidential |
| 2006 | <p>A multi-site waste management audit. Waste management (including environmental compliance) audits undertaken for a number of pharmaceutical products distributors and two manufacturing plant.</p> | Project Manager, auditor and co-author | Alberto-Culver |
| 2006 | <p>A multi-site waste management audit. Waste management (including environmental compliance) audits undertaken at a number of waste disposal facilities.</p> | Project Manager, auditor and co-author | Alberto-Culver |
| 2005 - 2006 | <p>Environmental and corporate standards compliance audits. Project management for environmental compliance and assurance audits for West African countries, including Mali, Guinea and Burkina Faso.</p> | Project Manager | Confidential |
| | <p>For all above environmental and corporate standards compliance auditing projects, roles included:</p> <ul style="list-style-type: none"> • Project manager (including contract sign-off, budget and resources management and allocation, project set-up, invoicing) and ongoing liaison with the client and members of team. • Conducting compliance auditing. • Coordination of field trip - Management of in-country logistics. • Management and writing of report. | | |

EDUCATION AND AFFILIATIONS

1996 Degree in Chemical Engineering obtained with Great Distinction "Université Libre de Bruxelles" (Belgium)

1999 Masters in Chemical Engineering obtained with Cum Laude (Distinction) University of Stellenbosch

Additional short-courses:

- Project Management II (University of Stellenbosch), 2012
- ISO 14001 Lead auditor course (ERM CVS), 2006
- Good Manufacturing Practice as a prerequisite for HACCP, CSIR, 2003
- ISO 14001 Internal Auditor Training Course, NOSA, 2002
- Waste Management for Environmental Managers, University of Potchefstroom, 2001
- Water Quality Management, University of Potchefstroom, 2001

Affiliations

International Association for Impact Assessments (IAIAs) – since August 2009.

EMPLOYMENT RECORD

October 2008 to present: Employed by the CSIR in Stellenbosch

November 2005 to September 2008: Project manager / environmental consultant at Environmental Resources Management Southern Africa

January 2004 to October 2005: Project/System Manager - Techpros Realising Solutions/BPE

March 2001 to December 2003: Project Engineer and Lecturer - Chemical Engineering Department (University of Stellenbosch)

May 1999 to February 2001: Project Engineer - Basse Sambre Engineering (BS/ERI) – Belgium

LANGUAGE CAPABILITY

| Language | Speaking | Reading | Writing |
|-----------|-----------|-----------|-----------|
| French | Excellent | Excellent | Excellent |
| English | Good | Good | Good |
| Afrikaans | Low | Average | Low |

CV OF DR. ANDREA PULFRICH

Nationality and Citizenship: South African and German

Languages: English, German, Afrikaans

Academic Qualifications

- BSc (Zoology and Botany), University of Natal, Pietermaritzburg, 1982
- BSc (Hons) (Zoology), University of Cape Town, 1983
- MSc (Zoology), University of Cape Town, 1987
- PhD, Department of Fisheries Biology of the Institute for Marine Science at the Christian-Albrechts University, Kiel, Germany, 1995

Membership in Professional Societies

- South African Council for Natural Scientific Professions (Pr.Sci.Nat. No: 400327/06)
- South African Institute of Ecologists and Environmental Scientists
- International Association of Impact Assessment (South Africa)
- Registered Environmental Assessment Practitioner (Certification Board for Environmental Assessment Practitioners of South Africa).

Employment History and Professional Experience

- 1998-present: Director: Pisces Environmental Services (Pty) Ltd. Specifically responsible for environmental impact assessments, baseline and monitoring studies, marine specialist studies, environmental management programmes and EMP Reports.
- During 1999, also senior researcher on contract to NAMDEB and De Beers Marine South Africa, at the University of Cape Town; investigating and monitoring the impact of diamond mining on the marine environment and fisheries resources.
- 1996-1999: Senior researcher at the University of Cape Town, on contract to the Chief Director: Marine and Coastal Management (South African Department of Environment Affairs and Tourism); investigating and monitoring the experimental fishery for periwinkles on the Cape south coast; experimental design and implementation of dive surveys for stock assessments; collaboration with fishermen.
- 1989-1994: Institute for Marine Science at the Christian-Albrechts University of Kiel, Germany; research assistant in a 5 year project to investigate the population dynamics of mussels and cockles in the Schleswig-Holstein Wadden Sea National Park (employment for Doctoral degree).
- 1988-1989: Australian Institute of Marine Science; volunteer research assistant and diver.
- 1985-1987: Sea Fisheries Research Institute of the South African Department of Environment Affairs and Tourism: scientific diver on deep diving surveys off Cape Agulhas; censusing fish populations, collection of benthic species for reef characterization.
- South African National Research Institute of Oceanography and Port Elizabeth Museum: technical assistant and research diver; quantitative sampling of benthos in Mossel Bay, and census of fish populations in the Tsitsikamma National Park.
- University of Cape Town, Department of Zoology and Percy Fitzpatrick Institute of African Ornithology; research assistant; supervisor of diving survey and collection of marine invertebrates, Prince Edward Islands.
- 1984-1986: University of Cape Town, Department of Zoology; research assistant (employment for MSc Degree). Scope of MSc study: the biology, ecology and fishery of the western Cape linefish species *Pachymetopon blochii*.

DECLARATION OF INTEREST: DR. ANDREA PULFRICH



environmental affairs

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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| NEAS Reference Number: | 12/12/20/ |
| Date Received: | DEAT/EIA/ |
| | |

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Environmental Impact Assessment and Waste Management License for the Construction, Operation and Decommissioning of a 150 Ml/day Sea Water Reverse Osmosis (SWRO) Plant and associated infrastructure proposed by Umgeni Water at Lovu on the KwaZulu-Natal South Coast.

| | | | |
|--------------------------------------|---------------------------|-------|-------------|
| Specialist: | Dr Andrea Pulfrich | | |
| Contact person: | Dr Andrea Pulfrich | | |
| Postal address: | PO Box 31228, Tokai | | |
| Postal code: | 7966 | Cell: | 082 7818152 |
| Telephone: | 021 7829553 | | |
| E-mail: | apulfrich@pisces.co.za | | |
| Professional affiliation(s) (if any) | Pr.Sci.Nat. No: 400327/06 | | |

| | | | |
|---------------------|---|-------|--------------|
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | | |
| Contact person: | Annick Walsdorff | | |
| Postal address: | PO Box 320, Stellenbosch | | |
| Postal code: | 7599 | Cell: | 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: | 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | | |

4.2 The specialist appointed in terms of the Regulations_

I, Andrea Pulfrich, declare that --

General declaration:

I act as the independent specialist in this application

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;

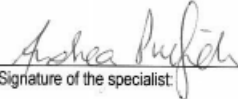
I will comply with the Act, regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority, and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

All the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.


Signature of the specialist:

Pisces Environmental Services (Pty) Ltd
Name of company (if applicable):

7 October 2015
Date:

CV OF SIMON BUNDY

NAME OF FIRM: Sustainable Development Projects cc

NAME OF STAFF: Simon Colin Bundy

PROFESSION: Ecologist / Environmental Assessment Practitioner

NATIONALITY: South African / British

MEMBERSHIP OF PROFESSIONAL BODIES: South African Council of Natural Scientific Professionals No. 400093/06 – Professional Ecologist

KEY QUALIFICATIONS

Simon Bundy has been involved in environmental and development projects and programmes since 1991 at provincial, national and international level, with employment in the municipal, NGO and private sectors, providing a broad overview and understanding of the function of these sectors. With a core competency in coastal ecology and coastal management, Bundy has worked on coastal projects in the Seychelles and Tanzania providing ecological and general environmental advice and support. Within South Africa, Bundy has been involved in a number of large coastal projects including residential estates, infrastructure and linear developments in KwaZulu-Natal (KZN), Eastern Cape and Western Cape. In such projects Bundy has provided both technical ecological support, as well as the undertaking of environmental impact assessments.

Allied to the above, Bundy has provided technical assistance to the "Save the Wild Coast" initiative through a technical report outlining the concerns relating to dune mining in and around the Xolobeni prospecting region while also evaluating critically, a number of environmental impact assessments and technical reports for various clients. Such evaluations have included "sea defence structures at Buffalo Bay, Western Cape", through the Nelson Mandela Metropolitan University. Bundy has also assisted the iSimangaliso Wetland Park in its initiatives against unlawful developments in the Bangha Nek region and has developed the UNESCO site's dune management plan. Bundy has also acted as an expert witness on ecological issues on a number of legal cases.

From a technical specialist perspective, Bundy is competent in a large number of ecological methodologies and analytical methods including statistical methods; multivariate analysis and ordination. Bundy is competent in wetland delineation and has formulated ecological coastal set back methodologies for Ezemvelo KZN Wildlife and the Oceanographic Research Institute. Bundy acts as botanical specialist for Eskom Eastern Region, with specific interest in coastal habitat forms.

EDUCATION

- BSc Biological Science MSc University of Natal.
 - Diploma Project Management (1997) Executive Education.
 - MSc (2004) University of KwaZulu-Natal
 - PhD candidate Department of Engineering UKZN.1998: "Sustainable development initiatives" in Europe.
 - Training Programme in Berlin, Germany.2000: Training course: "Environmental Economics and Development":University of Colorado (Boulder) USA.
-

RELEVANT PROJECT EXPERIENCE

Task Team Chair and Project Ecologist: Task Team for Coastal Disaster Management, KwaDukuza 2007 - 2011

Management of coastal clean up programme immediately following March storm event of 2007. Activities included introduction of geofabric bag protection options, coastal retreat implementation and development of policy on coastal management following destruction of coastline.

Ecological Review of Lake Mzingazi for Umhlatuze Water: University of KwaZulu-Natal – (2010)

Review of habitat structure and integrity of Mzingazi Lake System at Richards Bay required to interpret transformation of the aquatic system over time and evaluate forecast for future reference.

Ecological Review of Dune Cordon – Beachwood Golf Course: MER – (2013)

Review of state and vulnerability of portion of dune cordon at Beachwood, north of Durban for incorporation into Environmental Impact Assessment process.

Ecological Review and Rehabilitation Planning: Sodwana Bay: iSimangaliso Wetland Park Authority – (2013 - 2014)

Analysis and review of state of dune cordon in and around Sodwana Bay with consideration of the impacts of removing exotic trees from site to rejuvenate dune and beach dynamics.

Ecological and Environmental Services for Scatec Solar SA (2009 - date)

Environmental impact assessment processes and environmental control procedures for the Kalkbult, Lindes, Dreunberg Projects as well as other projects under consideration by Scatec.

Ecological and Dune retreat investigation of the Kosi Bay Illegal Development Isimangaliso Wetland Park Authority (2011)

Specialist investigation into the impact upon the dune cordon of structures placed in and close to dune cordon near Kosi Bay mouth.

PUBLICATIONS

- Bundy S C and Smith A M 2009 " Analysis of the Recovery of Two Separate Coastal Dune Systems Following the 2006 – 2007 Marine Erosion Event and Assessment of the Artificial Dune System in Coastal Management" KZN Marine and Coastal Management Symposium, Durban South Africa.
- Bundy S C , Smith AM, Mather AA 2010" Dune retreat and stability on the Northern Amanzimtoti Dune Cordon" EKZN Wildlife Conservation Symposium 2010
- Smith, A Mather AM Bundy SC, Cooper AS Guastella L, Ramsay PJ and Theron A ; 2010 "Contrasting styles of swell-driven coastal erosion: examples from KwaZulu-Natal, South Africa" Geology Journal", Cambridge University Press
- Smith, AM, L Guastella , SC Bundy and AA Mather 2007"Coastal Storm Damage in the March 2007 Storm SA Journal of Science 2007 "A Synopsis of Recent Storm Events"
- Guastella L, Smith A Mather A and Bundy S 2008 "As Memories Fade - A Review of the Post 2007 Coastal Erosion Events" African Wildlife 32 / 2008
- Smith A, Mather A, Theron A, Bundy S and Guastella L 2008 "The 2006-2007 KwaZulu – Natal Coastal Erosion Event in Perspective" 2009 Contribution to the The South African Environmental Observation Network publication " Climate Change in Southern Africa"
- Smith A and Bundy S 2009 "Coastal erosion: reparative work on the Ballito coastline, KwaZulu-Natal, South Africa, was it enough?" 2009 International Multi Purpose Reef and Coastal Conference, Jeffrey's Bay South Africa.
- Smith AM, SC Bundy 2012 "Review of Coastal Defence Systems in Southern Africa" Article for Springer Scientific Publications through Ulster University, Pilkey and Cooper
- Bundy SC AM Smith, L Guastella 2012 "A Review of Select Dune Rehabilitation Initiatives and a Proposed Methodology towards Ensuring a Prudent Approach towards the "Greening of Dunes" VI International Sandy Beaches Symposium Emphakweni Port Alfred
- Various popular articles including documentaries on coastal and climate change issues.

DECLARATION OF INTEREST: SIMON BUNDY



environmental affairs

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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PROJECT TITLE

Environmental Impact Assessment and Waste Management License for the Construction, Operation and Decommissioning of a 150 Ml/day Sea Water Reverse Osmosis (SWRO) Plant and associated infrastructure proposed by Umgeni Water at Lovu on the KwaZulu-Natal South Coast.

| | | | |
|--------------------------------------|--|-------|-------------|
| Specialist: | Terrestrial ecology | | |
| Contact person: | Simon C Bundy | | |
| Postal address: | P O Box 1016, Ballito | | |
| Postal code: | 4420 | Cell: | 0824464847 |
| Telephone: | 032-9460685 | Fax: | 032-9460784 |
| E-mail: | simon@ecocoast.co.za | | |
| Professional affiliation(s) (if any) | SACNASP 400093/06 | | |

| | | | |
|---------------------|--|-------|--------------|
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | | |
| Contact person: | Annick Walsdorff | | |
| Postal address: | PO Box 320, Stellenbosch | | |
| Postal code: | 7599 | Cell: | 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: | 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | | |

4.2 The specialist appointed in terms of the Regulations_

I, Simon C Bundy , declare that --

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.

Signature of the specialist:

SDP Ecological and Environmental Services

Name of company (if applicable):

18 October 2015

Date:

CV OF LIZ DAY

Name Elizabeth Day (née Reynolds)
Name of Firm Liz Day
Email lizday@mweb.co.za
Place of birth Zimbabwe
Nationality South African
Position in company Founding member

KEY QUALIFICATIONS

- Bachelor of Arts (English), University of Cape Town, 1989
- Bachelor of Science (Zoology (with distinction) and Environmental and Geographical Science); University of Cape Town; 1992
- Bachelor of Science (honours- Zoology, first class); University of Cape Town, 1993
- PhD (Zoology / Marine Biology); University of Cape Town, 1998

KEY WORK EXPERIENCE

1999- present Specialist consultant on freshwater ecosystems; co-founder of the Freshwater Consulting Group
1997 - 1999 Senior Consultant for Southern Waters Ecological Research and Consulting cc
1994 - 1996 Scientific Officer – WRC Project, Freshwater Research Unit, UCT.

SUMMARY OF RELEVANT EXPERIENCE

Twenty years' experience in aspects of aquatic ecology, specialising in:

- urban river and wetland management and rehabilitation
- urban stormwater design with respect to freshwater ecosystems
- water quality, specialising in urban stormwater quality assessments, wetland, river, wetland and vleiwater quality monitoring, analysis and assessment;
- specialist input into environmental impact assessments; baseline and situation assessments
- SASS5 biomonitoring
- catchment and river Management Plans
- river and wetland mapping and biodiversity planning
- wetland delineation.

Compiled over 300 specialist riverine ecology technical reports, 8 scientific papers (6 in international literature), 20 popular biological articles published in local environmental magazines, scripts for eight environmental documentaries. *Ad hoc* lecturer in freshwater ecology at UCT and PennTech; co-author on 4 Water Research Commission reports; lead author on chapters in UNESCO Sustainable Management of Urban Aquatic Ecosystems handbook; lead author on Aquatic Ecosystem chapters in Fynbos Management guidelines; project leader on WRC South African River Rehabilitation Manual (in prep.).

PROFESSIONAL AFFILIATIONS

- Member of IAIA
- Member of SAIEES
- Registered Professional Natural Scientist by SACNASP (Reg. No 400270/08) for fields of Biological Science, Ecological Science and Zoological Science
- Member of Western Cape Wetlands Forum
- Director of NPO Freshwater Research Centre

DECLARATION OF INTEREST: LIZ DAY



environmental affairs

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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| | | | |
|--------------------------------------|---|-------|--------------|
| Specialist: | Freshwater ecologist | | |
| Contact person: | Elizabeth (Liz) Day | | |
| Postal address: | Unit F6, Prime Park, Mocke Road, Diep River | | |
| Postal code: | 7945 | Cell: | 083 454 2309 |
| Telephone: | | Fax: | 086 529 6390 |
| E-mail: | liz@freshwaterconsulting.co.za | | |
| Professional affiliation(s) (if any) | Member of IAIA; Member of SAIEES; SACNASP Professional Natural Scientist (Reg No 400270/08); Member of Western Cape Wetlands Forum; | | |
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | | |
| Contact person: | Annick Walsdorff | | |
| Postal address: | PO Box 320, Stellenbosch | | |
| Postal code: | 7599 | Cell: | 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: | 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | | |

4.2 The specialist appointed in terms of the Regulations_

I, Elizabeth (Liz) Day, declare that –

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.



Signature of the specialist:

Freshwater Consulting cc

Name of company (if applicable):

15 October 2015

Date:

CV OF STEVEN WEERTS

| | |
|-------------------------|--|
| Firm | CSIR Natural Resources and the Environment (NRE) |
| Profession | Aquatic Scientist |
| Specialisation | Marine and estuarine ecology |
| Position in Firm | Senior Scientist |
| Year appointed | 2004 |
| Nationality | South African |

FIELDS OF SCIENTIFIC EXPERTISE

Steven is a marine and estuarine ecologist. He has been employed directly in the broad field of marine and estuarine ecology and biomonitoring for 16 years. During that period he has undertaken both academic and applied research work as well as contract and consultancy projects. Steven has worked extensively on subtropical coastal aquatic systems of KwaZulu-Natal on the east coast of southern Africa, including coastal plain rivers, all represented estuary types (temporarily open/closed, permanently open, river mouths and estuarine lakes), harbours and marine continental shelves. This work has been in applied biophysical fields of water quality- and biological monitoring, ecological health, assessment of impacts of development and pollutants, and determination of freshwater requirements. Steven's most recent marine monitoring work has included involvement in- and project leading of large scale programmes aimed at monitoring potential impacts of major national infrastructural developments in South African ports, as well as large municipal deep water outfalls. Steven has a particular interest in the ecological functioning and role of habitats altered or modified by anthropogenic activities. In this regard he has specific interest and expertise in factors underpinning ecological functioning of port habitats and the potential ecological role of ports in coastal ecosystems.

EDUCATION AND PROFESSIONAL STATUS

| | |
|----------------|---|
| Period | Organisation details and responsibilities/roles |
| 1995 - 1996 | Environmental Management Consultant, POLTECH-EMS (Cape) |
| 1996 - 2004 | Environmental Scientist: CRUZ, University of Zululand |
| 2004 - Present | Senior Scientist, Research Group Leader, CSIR |

SOME RECENT PROJECT EXPERIENCE

| Year | Description | Client (Sector) | Role |
|-----------|---|--------------------------|---|
| 2009-2011 | Sea disposal of industrial effluent off Mkomas River | Industry | Benthic specialist |
| 2009-2011 | Sea disposal of sewage: Environmental surveys in the Durban outfalls region | Municipal | Benthic specialist |
| 2010 | The impact of sugar mill effluent on the beaches, KwaZulu-Natal South Coast | Industry | Specialist |
| 2010 | Microbiological surveillance program for the monitoring of beaches and estuaries along the foreshore of the eThekweni Municipality | Municipal | Specialist |
| 2007-2009 | Status report on coastal and marine pollution from land-based activities in South Africa | UNEP/GEF | Project leader, specialist |
| 2007-2009 | Regional Synthesis Report on the Status of Pollution in the Western Indian Ocean Region | UNEP/GEF | Project leader, specialist |
| 2009-2010 | Revision of Recreation Water Quality Guidelines for Coastal Marine Waters in South Africa | DEA | Specialist |
| 2007-2009 | Towards a Protocol for Long-term Monitoring of Marine Environmental Quality in the Western Indian Ocean | UNEP/GEF | Project leader, specialist |
| 2009 | Mitigation for erosion behind proposed bulk liquid berth - Port of Richards Bay | National Ports Authority | Ecological specialist |
| 2009 | Port of Richards Bay: Basic assessment of potential aquatic ecological impacts of proposed geotechnical surveys | National Ports Authority | Project leader, ecological specialist |
| 2009 | Proposed Environmental Quality Guidelines for the Coastal Zone of the Western Indian Ocean (WIO) Region | UNEP/GEF | Ecological specialist |
| 2009-2011 | Port entrance widening in Durban Bay: Biomonitoring of nearshore waters and offshore benthic environments | National Ports Authority | Ecological specialist |
| 2008 | Port of Richards Bay Port Development Framework: Identification of Environmental Issues | National Ports Authority | Project leader, ecological specialist |
| 2008 | Port of Richards Bay: Ecological input regarding a hydrodynamic modelling study of a potential future port layout | National Ports Authority | Project leader, ecological specialist |
| 2008-2010 | Fish kills and pollution events in the Port of Durban Bay (various) | National Ports Authority | Project leader, ecological specialist |
| 2007 | Description and assessment of fish kills in the Port of Durban following a hazardous chemical installation fire and chemical spill of September 2007 | Industry | Project leader, ecological specialist |
| 2004-2008 | Richards Bay Berth 306 Dredging Study: Biomonitoring of port, estuarine and offshore environments | National Ports Authority | Project leader, ecological specialist |
| 2007 | Long term impacts and ecological recovery in the Island View basin of Durban Bay, following a pollution incident associated with a hazardous chemical installation fire | Industry | Project leader, ecological specialist, mentor |
| 2005 | Environmental Fatal Flaw Analysis of mining on the continental Shelf | Mining | Ecological specialist |
| 2004 | Preliminary Assessment of a proposed marine discharge of mine tailings | Mining | Ecological specialist |

A comprehensive list of projects worked on is available upon request.

DECLARATION OF INTEREST: STEVEN WEERTS



environmental affairs

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| | | | |
|--------------------------------------|-----------------------------------|-------|--------------|
| Specialist: | Estuarine ecology (aquatic fauna) | | |
| Contact person: | Steven Weerts | | |
| Postal address: | PO Box 14001, Congella | | |
| Postal code: | 4013 | Cell: | 082 870 4310 |
| Telephone: | 031 242 2356 | Fax: | 031 261 2509 |
| E-mail: | sweerts@csir.co.za | | |
| Professional affiliation(s) (if any) | - | | |

| | | | |
|---------------------|---|-------|--------------|
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | | |
| Contact person: | Annick Walsdorff | | |
| Postal address: | PO Box 320, Stellenbosch | | |
| Postal code: | 7599 | Cell: | 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: | 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | | |

4.2 The specialist appointed in terms of the Regulations_

I, Steven WEERTS, declare that – General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.



Signature of the specialist:

CSIR

Name of company (if applicable):

07 October 2015

Date:

CV OF SHAMILLA PILLAY

Firm : CSIR
Profession : Researcher (Ecologist)
Specialization : Ecology, Water Quality & Toxicity Testing
Position in Firm : Project Leader/Ecologist
Year appointed : 1981 (26 years)
Nationality : South African
Language Proficiency : English (Good-speaking & writing) Afrikaans (Basic- speaking & writing)

KEY EXPERIENCE

Capacity

- Water quality and pollution monitoring
- Impacts of air quality on vegetation
- Algal assays for biomonitoring (nutrients and toxicity)
- Aquaculture systems
- Wetlands for wastewater treatment and catchment management
- Terrestrial/Marine/Estuarine Ecology (Resource status, pollution impacts, sustainability)
- Marine toxicity testing

Courses

Environmental Impact Assessments (CSIR, 1993); Project Management (Groman, 1988); Negotiating Skills (Alan Wittaker, 1991); Stella I Think Modelling (CSIR, 1994); Environmental Law (Rhodes University, 1996); Changing Concepts in Ecology (UCT, 1999); Investment in Excellence (Pacific Institute, 2001).

EDUCATION AND PROFESSIONAL STATUS

| Qualification | Institution | Year |
|----------------------------|--------------------------------|------|
| B Sc. (Botany and Zoology) | University of Durban-Westville | 1980 |
| B Sc. Hons (Botany) | University of Durban-Westville | 1982 |

Memberships:

Association for the Taxonomic Study of the Flora of Tropical Africa (AETFAT - French acronym)
APCEN network
The Botanical Society of South Africa
SANCOR
CERM
AQUATOX FORUM

EMPLOYMENT AND EXPERIENCE RECORD

| Period | Organisation details and responsibilities/roles |
|--------------|--|
| 1980-1981 | Protea Secondary School – Teacher (Biology & Physical Science) |
| 1981-present | CSIR. Researcher and Project Leader |

Project Experience:

| Year | Description, client, role |
|--------------------|--|
| Recent and Ongoing | Marine toxicity testing: Testing of effluents discharged to sea as required by permitting authorities. Durban & Richards Bay, DWAF and approx 30 small and large companies. |
| Recent and Ongoing | Industrial wastewater settling ponds: Potential for impact on Birds |
| Recent and Ongoing | Impacts on mangroves in Richards Bay harbour from waves and potential mitigation |
| Recent and Ongoing | Impacts of atmospheric fluoride on vegetation in the Richards Bay area. |
| Recent and Ongoing | Marine water quality objectives for the Western Indian Ocean |
| Recent and Ongoing | Impacts of fluoride from aluminium smelters and sulphuric/phosphoric acid plants on freshwater and marine environments. |
| Recent and Ongoing | Air quality impacts on vegetation for proposed power station (Uruguay)) |
| Recent and Ongoing | Air quality impacts on vegetation for proposed gas fired power station (Nampower) |
| Recent and Ongoing | Air quality impacts on vegetation from alternative fuel powered cement kilns (NPC) |
| Recent and Ongoing | Impacts of accidental spills into aquatic environments e.g. accidental fire at chemical storage facility in the port of Durban |
| Recent and Ongoing | Specialist report (strategic environmental assessment) on the biophysical environment for the 50 year framework development plan for the Port of Richards Bay. |
| Recent and Ongoing | Impact assessments on fauna and flora resulting from various environmental contaminants (air and water borne) from large industries e.g. aluminium smelters, fertilizer plants |
| Recent and Ongoing | Vegetation recovery following accidental spills of sulphur dioxide from fertilizer plant |

| | |
|--------------------|--|
| Recent and Ongoing | Estuarine flow requirements – Resource directed measures – Botanical, water and sediment quality specialist assessments for KZN estuaries |
| Recent and Ongoing | Specialist study on impacts of proposed sewage disposal into river systems |
| Recent and Ongoing | Assessment of Water Quality and Ecology for National Ports Authority (Durban). |
| Recent and Ongoing | Developing an Importance Rating for the Estuaries of KZN based on Botanical and productivity value. |
| Recent and Ongoing | Evaluating the cause of Fish Kills in rivers, estuaries and ports as they occur. |
| Recent and Ongoing | Specialist Studies on the Biophysical Environment for EIAs, Development plans and SEAs. |
| Recent and Ongoing | Toxicity testing of marine sediments for the Ports of Durban, Richards Bay and East London (Portnet) for disposal of dredge – compliance with London Dumping Convention |
| 2001 | Determination of fluoride toxicity to several biological test organisms for determination of discharge permit limits. Hillside Aluminium. |
| 2000 | Impacts on flora from an aluminium smelter for the Alusaf water management plan. Hillside Aluminium |
| 1999 | Assessment of the state of the Terrestrial and Aquatic Environments for the Empangeni SEA. Empangeni Municipality Status of Natural Environment and Relevant Recommendation for the Umtamvuna Local Development Plan. Umtamvuna TLC Terrestrial Environmental Assessment of Specific Development sites for the Lumbombo SDI. Governments of SA and Swaziland |
| 1998 | Specialist Report on the Terrestrial Environment for the Durban South Industrial Basin. SEA. Durban Municipality |
| 1997 | Assessment of Terrestrial environment and local streams with relevant recommendations for the Cato Manor Development Plan. Cato Manor Development Association |
| 1996 | Specialist State of Environment (SOE) Report on the Terrestrial Environment for the Greater Durban Metropolitan Area. Durban Municipality Specialist study of contamination of Fauna and Flora around a chemical plant for EIA. Sanachem Terrestrial study and Integrated EIA report for proposed food acids plant. NCP |
| 1994-95 | Development of Expertise of Best Management Practices for stormwater control using instream detention ponds and wetlands in a new housing development. Review/ manual for Town and Regional Planning on Wetland technologies. |
| 1986-93 | Aquaculture Research including, wastewater for fish and ornamental plant production, red tilapia breeding programmes, invertebrate cultures for larval fish and prawn rearing. |
| 1983-85 | Developed algal assays for toxicity testing and determining nutrient availability in polluted waters. |
| 1981-82 | Chemical analyses of various wastewaters and natural systems. Participated in the large Rivers and Dams Programme for Department of Water Affairs. |

DECLARATION OF INTEREST: SHAMILLA PILLAY



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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|------------------------|-------------------------|
| | (For official use only) |
| File Reference Number: | 12/12/20/ |
| NEAS Reference Number: | DEAT/EIA/ |
| Date Received: | |

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Environmental Impact Assessment and Waste Management License for the Construction, Operation and Decommissioning of a 150 M/day Sea Water Reverse Osmosis (SWRO) Plant and associated infrastructure proposed by Umgeni Water at Tongaat on the KwaZulu-Natal North Coast.

| | | |
|--------------------------------------|--------------------------------|------------------|
| Specialist: | Shamilla Pillay | |
| Contact person: | Shamilla Pillay | |
| Postal address: | PO Box 17001, Congella, Durban | |
| Postal code: | 4013 | Cell: - |
| Telephone: | 031 242 2304 | Fax: 031 2616505 |
| E-mail: | spillay@csir.co.za | |
| Professional affiliation(s) (if any) | | |

| | | |
|---------------------|---|--------------------|
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | |
| Contact person: | Annick Walsdorff | |
| Postal address: | PO Box 320, Stellenbosch | |
| Postal code: | 7599 | Cell: 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | |

4.2 The specialist appointed in terms of the Regulations

I, Shamilla Pillay _____, declare that --

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.



Signature of the specialist:

Name of company (if applicable):

CSIR

Date: 7th October /2015

CV OF BRETT WILLIAMS

Name of Firm: Safetech
Profession: Occupational Hygienist
Position in Firm: Owner
Years with Firm: 20

Biographical Sketch

Brett Williams has been involved in Health, Safety and Environment since 1987 and has been measuring noise related impacts since 1996. He has conducted many noise impact assessments for the CSIR since 2008. His noise impact projects include (amongst numerous others):

- CSIR – Noise Impact Study of Saldaha Bay Desalination Plant
- CSIR – Port of Walvis Bay Extension
- CSIR – Noise Impact Study of Namwater Desalination Plant
- CSIR – Noise Impact Study of Port of Ngqura Manganese Ore Handling Terminal
- CSIR - Kouga Wind Energy Project
- CSIR Wind Current Wind Energy Project
- CSIR – Langefontein Wind Energy Project
- CSIR – Mossel Bay Wind Energy Project
- CSIR – Coega IDZ Wind Energy Project
- CES – Coega IDZ Wind Energy Project
- CES – Middleton Wind Energy Project
- CES – Waainek Wind Energy Project
- CES - Ncora Wind Energy Project
- CES - Qunu Wind Energy Project
- CES - Nqamakwe Wind Energy Project
- CES – Plan 8 Wind Energy Project
- CES - Qumbu Wind Energy Project
- CES - Peddie Wind Energy Project
- Crown Chickens – The independent report review of a noise specialist report conducted as part of an EIA to establish a new broiler farm
- BMW – The evaluation of the impact of the Rosslyn production facilities on the surrounding community.
- Victory Race Track - Specialist noise report conducted as part of an EIA to establish a new stock car racing track.
- Continental Tyre - The evaluation of the impact of production facilities on the surrounding community.
- Media 24 – The measurement portion of an investigation on the impact of a printing press on a local community. The main study was conducted by the University of Stellenbosch.
- Zwartebosh Quarry - Specialist noise report conducted as part of an EIA to establish a new quarry.
- Milo Granite - Specialist noise report conducted as part of an EIA to establish a new quarry.
- Dunlop Tyres - The evaluation of the impact of production facilities on the surrounding community.
- Sasol Secunda - Independent report review of a noise specialist report conducted to determine the impact of production facilities on the surrounding community.
- Barlow World Coatings - The evaluation of the impact of production facilities on the surrounding community.
- Western Platinum Refinery - The evaluation of the impact of production facilities on the surrounding community.

DECLARATION OF INTEREST: BRETT WILLIAMS



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Environmental Impact Assessment and Waste Management License for the Construction, Operation and Decommissioning of a 150 Ml/day Sea Water Reverse Osmosis (SWRO) Plant and associated infrastructure proposed by Umgeni Water at Lovu on the KwaZulu-Natal South Coast.

| | | | |
|--------------------------------------|-------------------------------|-------|--------------|
| Specialist: | NOISE IMPACT | | |
| Contact person: | DR BRETT WILLIAMS | | |
| Postal address: | P.O. BOX 27607, GREENACRES | | |
| Postal code: | 6057 | Cell: | 082 550 2137 |
| Telephone: | 041 365 6846 | Fax: | 041 365 2123 |
| E-mail: | brett.williams@safetech.co.za | | |
| Professional affiliation(s) (if any) | MEMBER OF SA10H | | |

| | | | |
|---------------------|---|-------|--------------|
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | | |
| Contact person: | Annick Walsdorff | | |
| Postal address: | PO Box 320, Stellenbosch | | |
| Postal code: | 7599 | Cell: | 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: | 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | | |

4.2 The specialist appointed in terms of the Regulations_

I, DR BRETT WILLIAMS , declare that --

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.

Signature of the specialist:


SAFETECH

Name of company (if applicable):

2015-10-08

Date:

CV OF HENRY HOLLAND

Profession: GIS Consultant
Date of Birth: 26 December 1968

BIOGRAPHICAL SKETCH

Henry has been doing GIS related work since 1992 when he started his M.Sc. in Geology. Since finishing his Masters he worked in Angola establishing a GIS department for a diamond exploration company, after which he worked on a freelance basis for eight years doing GIS related work and computer programming. In 2005 he established the Mapthis Trust which provides geospatial services for a range of environmental and geological companies and projects. Henry has been involved in Visual Impact Assessments (VIAs) since 1997.

TERTIARY EDUCATION

| | | |
|-------------|--------------------|-------------------|
| 1996 | M. Sc. Geology/GIS | Rhodes University |
| 1986 | B.Sc. Hons | UOFS |


KEY EXPERIENCE

The table below presents an abridged list of Henry's project experience relevant to this proposal:

| Completion Date | Project description | Role | Client |
|-----------------|---|--------|-----------------------------------|
| 2015 | Inyanda-Roodeplaat WEF, Uitenhage, EC | Author | SRK |
| 2015 | OTGC Oil Storage Terminal BA – Visual Impact, Durban, KZN | Author | CSIR |
| 2014 | Mainstream Dealesville Solar Plants VIA, Freestate Province | Author | CSIR |
| 2014 | Mullilo Solar Plants VIA, Northern Cape | Author | CSIR |
| 2014 | Frontier SRMOP EIA, Saldanha, WC | Author | CSIR |
| 2013 | Ishwati Emoyeni Wind Energy Facility VIA, Western Cape | Author | CSIR |
| 2013 | Venter Fert Composting and Fertiliser Plant | Author | Public Process Consultants |
| 2013 | Kipeto Power Line, Kenya | Author | Kipeto Energy Ltd. |
| 2012 | Ngqura Manganese Export Facility VIA, Coega, Eastern Cape | Author | CSIR |
| 2012 | Toliara Sands Mining Project VIA, Toliara, Madagascar | Author | CES |
| 2012 | Mkuze Biofuel Power Plant VIA, Mkuze, KwaZulu-Natal | Author | CSIR |
| 2012 | Vleesbaai WEF VIA, Western Cape | Author | CSIR |
| 2012 | Saldanha Desalination Plant VIA, Saldanha Bay, Western Cape | Author | CSIR |
| 2012 | Mossel Bay WEF, Western Cape | Author | CES |
| 2012 | Keimoes Solar Energy Facility, NC | Author | CSIR |
| 2012 | Douglas Solar Energy Facility, NC | Author | CSIR |
| 2012 | Richards Bay WEF VIA, KZN | Author | CES |
| 2012 | Hluhluwe WEF VIA, KZN | Author | CES |
| 2012 | Plan8 Grahamstown Wind Farm VIA, Eastern Cape | Author | CES |
| 2012 | Kipeto Wind Farm VIA, Kenya | Author | Galetech Energy Developments Ltd. |
| 2011 | Coega IDZ Zone 12 Wind Farm | Author | CSIR |
| 2011 | Haverfontein Wind Farm, Mpumalanga | Author | CES |
| 2011 | Middleton Wind Farm, Cookhouse | Author | CES |
| 2011 | Broadlands PV Plant, Humansdorp | Author | CSIR |
| 2011 | Ubuntu Wind Farm, Jeffrey's Bay | Author | CSIR |
| 2011 | Lushington Park Wind Farm, East London | Author | CES |
| 2011 | Chaba Wind Farm, Komga | Author | CES |
| 2010 | Thomas River Wind Farm and PV Park VIA, Stutterheim | Author | CES |
| 2010 | Eskom Power Line VIA, Kouga | Author | CES |
| 2010 | Laguna Bay Resort VIA | Author | CES |
| 2010 | Kouga Wind Farm VIA | Author | Arcus GIBB |
| 2010 | Electrowinds Coega Wind Farm VIA | Author | CSIR |
| 2010 | Innowind Coega Wind Farm VIA | Author | CES |
| 2010 | Jeffrey's Bay Wind Farm VIA, Jeffrey's Bay | Author | CSIR |
| 2010 | Cookhouse Wind Farm VIA, Cookhouse | Author | CES |
| 2009 | Waainek Wind Farm VIA, Grahamstown | Author | CES |
| 2009 | Coega Wind Turbine BA (Visual Input) | Author | CSIR |
| 2009 | Sierra Leone Ethanol Plant VIA | Author | CSIR |
| 2009 | NamWater Desalination Plant VIA, Swakopmund, Namibia | Author | CSIR |
| 2009 | Nooitgedagt/Coega Water Supply VIA, Motherwell | Author | SRK |
| 2009 | CDM Brewery VIA, Nampula, Mozambique | Author | CES |
| 2009 | TankaTara Preliminary Visibility Analysis, Addo | Author | CES |
| 2008 | Kouga Wind Energy Project VIA, Jeffreys Bay | Author | CSIR |
| 2008 | Aston Bay VIA | Author | CES |

| Completion Date | Project description | Role | Client |
|-----------------|--|--------|-----------------------------------|
| 2008 | NPA Boundary Wall VIA, Port Elizabeth | Author | CSIR |
| 2008 | Elitheni Coal Mining VIA, Indwe | Author | Savannah Environmental (PTY) Ltd. |
| 2008 | Coegakamma Chicken Broiler Housing VIA | Author | Public Process Consultants |
| 2008 | Amanzi Country Lifestyle Estate VIA, Uitenhage | Author | Public Process Consultants |

DECLARATION OF INTEREST: HENRY HOLLAND



environmental affairs
Department
Environmental Affairs
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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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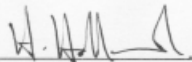
| | | | |
|---|---|---|--|
| <p>Specialist:</p> <p>Contact person:</p> <p>Postal address:</p> <p>Postal code:</p> <p>Telephone:</p> <p>E-mail:</p> <p>Professional affiliation(s) (if any)</p> | <p>Visual Impact</p> <p>Henry Holland</p> <p>8 Cathcart Street</p> <p>6139</p> <p>046 6228735</p> <p>hholland@gmail.com</p> | <p>Cell: 082 2266689</p> <p>Fax:</p> | |
| <p>Project Consultant:</p> <p>Contact person:</p> <p>Postal address:</p> <p>Postal code:</p> <p>Telephone:</p> <p>E-mail:</p> | <p>Council for Scientific and Industrial Research (CSIR)</p> <p>Annick Walsdorff</p> <p>PO Box 320, Stellenbosch</p> <p>7599</p> <p>021 888 2661</p> <p>awalsdorff@csir.co.za</p> | <p>Cell: 083 390 9009</p> <p>Fax: 021 8882693</p> | |

4.2 The specialist appointed in terms of the Regulations_

I, HENRY HOLLAND, declare that --

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
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I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.



Signature of the specialist:

Name of company (if applicable):

8 OCTOBER 2015
Date:

CV OF DR. HUGO VAN ZYL

Key qualifications:

Dr. van Zyl holds a PhD in economics from the University of Cape Town and has seventeen years' experience focusing on the analysis of projects and policies with significant environmental and development implications. He has been involved in over 60 economic and socio-economic appraisals of infrastructure projects, industrial developments, mixed use developments, mining, energy projects, conservation projects and eco-tourism initiatives throughout southern Africa. The majority of these appraisals have involved the use of economic impact assessment tools and cost-benefit analysis in order to inform decision-making. He has lead, participated in and co-ordinated research in environmental resource economics (incl. environmental valuation, payments for ecosystem services, policy reform), socio-economic impact assessment, strategic assessment and protected area business planning. From a policy perspective he has provided economic inputs and guidance to national water tariff, air pollution, biodiversity conservation, biofuels, mine closure funding and climate change policy.

Selected relevant experience:

Economic specialist inputs into Environmental Impact Assessments (EIAs):

- **Renewable energy - 8 projects including:**
 - Wind – SWE near Vleesbaai, Western Cape (2013); SAGIT Energy Ventures near Bot River and Wolesley, Western Cape (2012). Windcurrent near Jeffrey's Bay, Eastern Cape (2011); InnoWind near Mossel Bay, Western Cape (2011);
 - Solar - Mainstream near Douglas and Keimoes, Northern Cape (2012); Thupela Energy near Vaalwater, Limpopo (2011).
- **Major infrastructure - 15 projects including:**
 - Desalination plant for West Coast District Municipality, Western Cape (2012); Green Point World Cup Stadium, Cape Town (2008); Petroline petrol pipeline between Maputo and Gauteng (2008); Muldersvlei water treatment plant and reservoir near Klapmuts, Western Cape (2007); Iron ore terminal expansion at Saldanha port, Western Cape (2000); Wastewater treatment plan for East London, Eastern Cape (1996);
- **Industrial developments and mining, 11 projects including:**
 - AfriSam limestone mine at Saldanha Bay, Western Cape (2012); Vedanta zinc mine near Aggeneys, Northern Cape (2013); Expansion of the PPC cement plant at Riebeek West, Western Cape (2009); Burnstone gold mine expansion (2009)
- **Mixed-use and residential developments - 14 projects including:**
 - Barinor and Richmond park developments in Cape Town (2011); De Plaat residential estate near Velddrif, Western Cape (2009); Langezand leisure development in Struisbaai, Western Cape (2011); Garden Route Dam mixed use development in George, Western Cape (2008);
- **Roads - 9 projects including:**
 - Musina Ring Road, Limpopo (2011); Bloubos local road in Somerset West, Western Cape (2010); N1/N9 intersection upgrade at Colesberg, Free State (2009);

Guideline document formulation and similar projects:

- Lead author of the Western Cape Provincial Government guidelines on economic specialist inputs into Environmental Impact Assessments. (2005)
- Second author of TEEB (The Economics of Ecosystems and Biodiversity) guideline manual on conducting TEEB Country Studies focus on the value of ecosystem services. (2013)
- Part of study team that formulated guidelines for the Western Cape Provincial Government on the use of biodiversity offsets. (2007)

DECLARATION OF INTEREST: DR. HUGO VAN ZYL



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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| | | | |
|--------------------------------------|--|-------|------------|
| Specialist: | Independent Economic Researchers | | |
| Contact person: | Dr Hugo van Zyl | | |
| Postal address: | PO Box 1015, green point | | |
| Postal code: | 8051 | Cell: | 0825784148 |
| Telephone: | 021 4223194 | Fax: | |
| E-mail: | Hugovz@mweb.co.za | | |
| Professional affiliation(s) (if any) | International Association for Impact Assessment, Economics Society of South Africa | | |

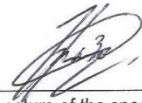
| | | | |
|---------------------|---|-------|--------------|
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | | |
| Contact person: | Annick Walsdorff | | |
| Postal address: | PO Box 320, Stellenbosch | | |
| Postal code: | 7599 | Cell: | 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: | 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | | |

4.2 The specialist appointed in terms of the Regulations_

I, Dr Hugo van Zyl, declare that –

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
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I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.



Signature of the specialist:

Independent Economic Researchers

Name of company (if applicable):

07/10/2015

Date:

CV OF Len van Schalkwyk

| | |
|---------------------------|---|
| Proposed Position: | Archaeologist / Heritage resources manager |
| Name of Firm: | eThembeni Cultural Heritage |
| Name of Staff: | Leonard Outram van Schalkwyk |
| Profession: | Archaeologist / Business Director |
| Years with Firm: | 11 |
| Nationality: | South African |

Membership of Professional Societies:

Association of Southern African Professional Archaeologists (ASAPA)
ASAPA Cultural Resources Management Section - listed as Principal Investigator
Amafa aKwaZulu-Natali accredited heritage practitioner
South African Heritage Resources Agency's Archaeological Permit Advisory Committee (2004)
South African member of International Scientific Committee for Archaeological Management, elected by ICOMOS-SA Executive (1999 - 2000)
Provincial Representative: South African World Heritage Convention Committee (1998 - 2000)
Southern African Museums Association (1984 -1999)

KEY QUALIFICATIONS AND RELEVANT EXPERIENCE

Mr van Schalkwyk has 25 years of professional experience as a practising archaeologist and heritage resource manager in South Africa, Botswana and Mozambique. His research interests have focussed on the Iron Age of southern Africa, while his management specialisations are heritage impact assessments, community liaison and ancestral grave management.

Mr van Schalkwyk's key heritage management, tourist guide training and research initiatives include:

- Principal Investigator - survey and excavation of heritage resources in Richards Bay Minerals' concession areas, KwaZulu-Natal, including oral history recording programme with traditional wisdom keepers to ensure appropriate mitigation. Procedures regarding discovery, retrieval and re-interment of human remains negotiated satisfactorily.
- Mnweni Valley cultural landscape management, northern uKhahlamba / Drakensberg - cultural tourist guide training, development of integrated land use and cultural heritage management plan, co-ordination of displays for interpretive centre.
- Reichenau Mission, southern uKhahlamba / Drakensberg - cultural tourist guide training; permaculture design workshop, compilation of infrastructural development plan with local community, including establishment of a community Trust, upgrade of access roads, building restoration, skills training and empowerment.
- Maloti / Drakensberg Transfrontier Conservation and Development Area project for the Global Environment Facility of the World Bank - assessment of heritage databases and organisational capacity of relevant areas of Lesotho and South Africa.
- ICOMOS (SA) observer for uKhahlamba Drakensberg Park World Heritage Site assessment.
- Implementation of the cultural resources management plan for the uKhahlamba Drakensberg Park (CURE), focussing on rock art management.
- Specialist report on coastal zone management of KwaZulu-Natal for Environmental Evaluation Unit of the University of Cape Town.
- Co-Director, Isandlwana Archaeological Project, with Glasgow University Archaeology Research Division.
- Lead consultant - cultural resources assessment of uThukela Water Scheme for Department of Water Affairs and Forestry and Institute of Natural Resources.
- Member of Ministerial Monuments Task Group committee to formulate KwaZulu-Natal Heritage Act No 10 of 1997.
- Fencing and stabilisation of excavated deposits at Border Cave, Ingwavuma district.
- Field Director of research project with University of Manitoba, Canada on Early Iron Age of KwaZulu-Natal at Ndongondwane. Fieldwork and analysis ongoing.
- Excavation of middens at King Shaka's KwaBulawayo iKhanda in collaboration with Gavin Whitelaw (Natal Museum).
- Cultural heritage management of greater Chobe Conservation area in Botswana - production of policy document for submission to World Wildlife Fund.

Mr van Schalkwyk has completed more than 800 heritage impact assessments and specialist studies in southern Africa, particularly South Africa and Mozambique, including:

- Archaeological assessment of the Benga mineral title area, Tete Province, Mozambique
- Gautrain tunnel and portal variants, Johannesburg for Bohlweki Environmental
- Gautrain route variants, Tshwane for Felehetsa Environmental (Pty) Ltd
- Thuispunt 400kV transmission lines for SiVEST Environmental Division
- Gamma Grassridge 765kV lines for ACER (Africa)
- Alton North ferrochrome smelter, Richards Bay for CSIR Environmentek
- Msukeni and Lugelweni ecotourism developments, Eastern Cape for Environmental and Rural Solutions
- KwaBulawayo tourism development for ZAI Consultants
- Avon and Geogedale peaking power plants for Environmental Impact Management Services (Pty) Ltd
- Braamhoek Pumped Storage Scheme impact assessment and monitoring for Eskom
- 10 000BC filming location, Garden Castle for Brousse-James & Associates
- Heritage resources component of the KwaDukuza Strategic Environmental Assessment for SiVEST Selatle Molo
- Majuba Mfolozi power lines for BKS Environmental Management Division
- Manguzi power line for Indiflora cc
- Ludeke Dam, Bizana, for MBB Engineering and Umgeni Water Amanzi

- Imvutshane Dam for Afzelia Environmental Consultants
- Mooi Mgeni Transfer Scheme Phase 2 for BKS (including Spring Grove Dam)
- Umhlatuze water for Strategic Environmental Focus
- Dukuza Hoffenthal for Terratest Incorporated
- Mzimayi and Hazelmere La Mercy for Umgeni Water Amanzi
- Ugje waste water treatment works for Terreco Consulting
- Upgrade of six dams in Limpopo and Northwest Provinces for Cave Klapwijk & Associates

Mr van Schalkwyk's community liaison experience includes:

- Mbonambi and Sokhulu communities - negotiated mitigation and future practice regarding exposure of human remains by Richards Bay Minerals' mining activities on ancestral lands.
- Bhekeshowe Traditional Authority - investigated feasibility of developing King Shaka's KwaBulawayo site as a tourist destination.
- Khovokeni and Mvutshane communities at Kosi Bay - investigated feasibility of declaring Tsonga fish traps as significant cultural landscape; Communities affected by Paris Dam - negotiation of appropriate mitigation for exhumation and reinterment of ancestral graves.
- Mngomezulu Traditional Authority - negotiated management of Border Cave archaeological site.
- Nxamalala and Bhengu Traditional Authorities - investigated declaration of archaeological conservancy in lower uThukela River Basin.
- Mpungose Traditional Authority - negotiated extended boundaries of Ondini Historical Reserve.
- Mangwebuthanani Traditional Authority - negotiated establishment of Isandlwana Historical Reserve.

EDUCATION

- 1992 MA Archaeology (University of Cape Town)
1983 BA Honours Archaeology (University of Stellenbosch)

EMPLOYMENT RECORD

December 2000 to present:

- Partner in eThembeni Cultural Heritage, an independent organisation specialising in heritage impact assessments, ancestral grave management and integrated environmental management.

November 1996 to December 2000

- Assistant Director (Research, Professional Services and Compliance) of Amafa aKwaZulu-Natali, in charge of ten professional and administrative staff, including archaeologists, anthropologists, architects and database managers.

November 1992 to October 1996

- Archaeologist with the KwaZulu Monuments Council and Principal Professional Officer (Research Division) in charge of six professional and administrative staff. Responsible for Museum and Interpretive Centre co-ordination in KwaZulu.

February 1986 to October 1992

- Professional Officer and officer-in-charge at Ondini Museum in Ulundi with KwaZulu Monuments Council, responsible for supervising archaeological excavations and reconstruction of King Cetshwayo's Ondini Royal Residence; management of Historical Reserve and Nguni cattle herd; development of Ondini Museum and its tourist facility and provincial site interpretation.

July 1983 to January 1986

- Field Director of Early Iron Age archaeological research project in lower uThukela Valley.

December 1978 to June 1983

- Ranger / Naturalist in Kruger National Park.

December 1977 to February 1978

- Field Research Assistant in Hluhluwe / iMfolozi Game Reserve.

| LANGUAGES | Speaking | Reading | Writing |
|-----------|-----------|-----------|-----------|
| English | Excellent | Excellent | Excellent |
| Afrikaans | Excellent | Excellent | Excellent |
| Zulu | Very good | Good | Poor |

DECLARATION OF INTEREST: LEN VAN SCHALKWYK



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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|------------------------|-------------------------|
| File Reference Number: | (For official use only) |
| NEAS Reference Number: | 12/12/20/ |
| Date Received: | DEAT/EIA/ |

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Environmental Impact Assessment and Waste Management License for the Construction, Operation and Decommissioning of a 150 M/day Sea Water Reverse Osmosis (SWRO) Plant and associated infrastructure proposed by Umgeni Water at Tongaat on the KwaZulu-Natal North Coast.

| | | |
|---------------------------------------|--|------------------|
| Specialist: | Heritage Assessment Practitioner | |
| Contact person: | Len van Schalkwyk | |
| Postal address: | PO Box 20057 ASHBURTON | |
| Postal code: | 3213 | Cell: 0826559077 |
| Telephone: | | Fax: 0866728557 |
| E-mail: | thembeni@iafrica.com | |
| Professional affiliation(s) (if any): | Southern African Association of Professional Archaeologists Reg. No.165 | |

| | | |
|---------------------|---|--------------------|
| Project Consultant: | Council for Scientific and Industrial Research (CSIR) | |
| Contact person: | Annick Walsdorff | |
| Postal address: | PO Box 320, Stellenbosch | |
| Postal code: | 7599 | Cell: 083 390 9009 |
| Telephone: | 021 888 2661 | Fax: 021 8882693 |
| E-mail: | awalsdorff@csir.co.za | |

4.2 The specialist appointed in terms of the Regulations_

I, Leonard van Schalkwyk _____, declare that –

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in
views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such
work;
I have expertise in conducting the specialist report relevant to this application, including knowledge
of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my
possession that reasonably has or may have the potential of influencing - any decision to be taken
with respect to the application by the competent authority; and - the objectivity of any report, plan
or document to be prepared by myself for submission to the competent authority;
All the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms
of section 24F of the Act.

Leonard van Schalkwyk

Signature of the specialist:

eThembeni Cultural Heritage Management

Name of company (if applicable):

09 October 2015

Date: