Contents

List of Tables

8 SPECIALIST ASSESSMENTS

This chapter of the EIA provides a summary of the specialist assessments that were conducted, as well as the purpose of the EIA Phase for the Nuclear-1 EIA. As a result of the nature and scale of the proposed project and the potential impacts on the environment, and resulting from the comments received during the Scoping Phase, various specialist studies were identified for the EIA process. The comments raised during the public participation process described in Chapter 7, and which were recorded in the Issues and Response Report (IRR), were used to develop the Terms of Reference provided to the specialist teams. In addition, independent specialists reviewed the methodology of the specialist reports prepared for this process during the Scoping Phase to ensure a high standard of technical quality.

The specialists appointed (**Table 8-1**) were required to outline the methodology they used, and clearly identify assumptions and sources of information. The knowledge of local people was incorporated in the study, where relevant. The description of the study approach included a short discussion of the appropriateness of the methods used in the specialist study in terms of local and international trends with respect to the specific practice. The key components outlined in the sections that follows formed part of the specialist Terms of Reference. **Table 8-1** summarises the specialist team members and their field of expertise:

Table 8-1: EIA specialist team members and their fields of expertise

Task/ Discipline/ Local Involvement	Team Leaders	Organisation	Appendix no. of report (if applicable)
Support Team (Reviewers, Advisors and Consultants)			
Nuclear Specialist Reviewer	Paul Fitzsimons	GIBB (PTY) Ltd	n.a.
Peer Reviewers (Technical and EIA Process)	Mark Wood	Mark Wood Consultants[1]	n.a.
	Sean O'Beirne[2]	SE Solutions	
Legal Advisor	Nicholas Smith	Smith Ndlovu Summers	n.a.
Technical Specialists			
Dune Geomophology	Dr Werner Illenberger	Illenberger and Associates	Appendix E2
Geological Hazard Assessment	Erna Hattingh and Johan Neveling	Council for Geoscience	Appendix E3
Seismic Risk Assessment			Appendix E4
Geotechnical characteristics	Bruce Engelsman	SRK Consulting	Appendix E5
Hydrology	Peter Rosewarne		Appendix E6
Geo-hydrology			Appendix E7
Fresh Water Supply			Appendix E8
Position of the 1:100 year Floodline	Stephen Luger	Prestedge Retief Dresner Wijnberg	Appendix E9
Air Quality and Climate Assessment	Lucian Burger / Prof. Hannes Rautenbach	Airshed Planning Professionals University of Pretoria[3]	Appendix E10
Flora	Barrie Low	Coastec	Appendix E11
Freshwater Ecology (Wetlands)	Dr Liz Day	The Freshwater Consulting Group	Appendix E12

[1] Janet Bodenstein of the Environmental Evaluation Unit of the University of Cape Town was the peer reviewer during the Scoping Phase. Due to her subsequent employment by the City of Cape Town and the resultant potential conflict of interest, she withdrew as peer reviewer in March 2008.

[2] Sean O'Beirne is part of the core Nuclear-1 EIA team as a technical advisor from May 2014.

[3] Mark Tadross of the Climate Systems Analysis Group of the University of Cape Town was the specialist during the Scoping Phase.

Task/ Discipline/ Local Involvement	Team Leaders	Organisation	Appendix no. of report (if applicable)
Vertebrate Fauna	Dr James Harrison	UCT Avian Demography Unit	Appendix E13
Invertebrate Fauna	Peter Hawkes, with amendments by Dewald Kamffer[4]	AfriBugs[5] Ecocheck	Appendix E14
Marine Biology	Prof. Charles Griffiths / Tamara Robinson	UCT Marine Biology Research Institute	Appendix E15
Oceanography and surf breaks	Rhys Giljam	WSP Environmental Consultants[6]	Appendix E16
Economic Impact Assessment	Gavin Maasdorp / William and David Mullins	Imani Development: Economic, Trade and Development Consultants / Conningarth Economists	Appendix E17
Social Impact Assessment	Alewijn Dippenaar	Octagonal Development[7]	Appendix E18
Visual Impact Assessment	Alan Cave	Bapela Cave Klapwijk	Appendix E19
Heritage Impact Assessment	Dr Tim Hart	UCT Archaeological Contracts Office	Appendix E20
Agricultural Potential Assessment	Jon Howcroft, Gavin Maasdorp	Imani Development: Economic, Trade and Development Consultants	Appendix E21
Tourism Impact Assessment	David Scott, Gavin Maasdorp	Imani Development: Economic, Trade and Development Consultants	Appendix E22
Noise Assessment	Adrian Jongens	Jongens Keet and Associates	Appendix E23
Human Health Risk Assessment	Willie Van Niekerk	Infotox	Appendix E24
Traffic and Transportation	Andrew Bulman, Sarah Chow	GIBB	Appendix E25
Emergency Response Assessment	Johan Slabbert	SRK	Appendix E26
Site Control Assessment	Peter Rosewarne	SRK	Appendix E27
Eskom Grid Planning Report	System Planning Team	Eskom	Appendix E28
Radioactive Waste Management	Japie van Blerk	Aquisim Consulting	Appendix E29
1st Addendum report (Debris flow and flooding) and Second Addendum Report	Dr Werner Illenberger	Illenberger and Associates	Appendix E30

[4] Mr Dewald Kamffer amended the invertebrate report based on additional monitoring that he carried out at all three alternative sites during the course of 2012 and 2013.

[5] Dr Mike Picker of University of Cape Town was the specialist during the Scoping Phase.

[6] Prof Frank Shillington of the University of Cape Town was the specialist during the Scoping Phase.

[7] Octagonal Development was assisted by Tony Barbour (an independent SIA consultant) and Dr Neville Bews of Neville Bews and Associates.

Task/ Discipline/ Local Involvement	Team Leaders	Organisation	Appendix no. of report (if applicable)
Thyspunt Access Road Assessment	Barrie Low Liz Day John Halkett Mark Marshall Adrian Jogens	Coastec The Freshwater Consulting Group UCT Archaeological Contracts Office Sandula Conservation Jongens Keet and Associates	Appendix E31
Radiological Assessment	Johan Slabbert	PSI Risk Consultants CC	Appendix E32
Beyond Design Accident Report	Johan Slabbert	PSI Risk Consultants CC	Appendix E33
Spatial planning (Town Planning)	Nico Kriek and Carl Erasmus	GIBB	Appendix E34
Transmission Integration Report	Kevin Leask	Eskom : Grid Planning Department	Appendix E35
Conservation Offset Guideline	Barie Low	Coastec	Appendix E36

8.1 Description of the affected environment

A description of the affected environment was provided by each specialist in their reports. The focus of this description was relevant to the specialist's field of expertise. The specialist provided an indication of the sensitivity of the affected environment. Sensitivity, in this context, refers to the "ability" of an affected environment to tolerate disturbance, for example, if disturbance of the natural habitat results in the permanent loss of its biodiversity, the affected environment could be categorised as having a "low tolerance" to disturbance and is, therefore, termed a highly sensitive habitat. If, on the other hand, a habitat is able to withstand significant disturbance without a marked impact on its biodiversity, the affected environment could be categorised as having a high tolerance to disturbance (i.e. "low sensitivity" habitat).

8.2 Legislation, policies and guidelines

A literature review of legislation, policies and guidelines applicable to the specialist study was conducted, and summarised for each specialist study. The specialists drew on this literature review as necessary when describing the assessment alternatives, and completing the impact identification and assessment. In particular, these documents assisted in providing a basis for determining the significance of potential impacts. In many cases, applicable legislation, policies and guidelines have also been drawn to provide effective mitigation measures and management recommendations.

8.3 Assessment of alternatives

Flowing from the recommendations made ***at the scoping phase*** and the DEA's approval of the Scoping Report in 2009, the following sites have been investigated further in the EIA Phase of the EIA process:

- Duynefontein;

- Bantamsklip; and
- Thyspunt.

8.4 Impact identification and assessment

The specialists were required to make a clear statement, identifying the environmental impacts of the construction, operation, decommissioning and management of the proposed development. As far as possible, the specialist had to quantify the suite of potential environmental impacts identified in the study and assess the significance of the impacts according to the criteria set out in **Chapter 10 Annexure: Analysis of Impacts Identified in Specialist Studies**.

Each impact was assessed and rated in accordance with the methodology described in **Chapter 10 Annexure: Analysis of Impacts Identified in Specialist Studies**. The impact assessment provided an evaluation of the significance of each of the three phases of the project (i.e. design, construction and operational phases). The assessment of the data where possible was based on accepted scientific techniques, failing which the specialist made informed judgements based on his/her professional expertise and experience.

8.5 Mitigation measures

Feasible and practical mitigation measures were recommended in order to minimise negative impacts and to enhance the benefits of positive impacts. The mitigation measures further addressed:

- Mitigation objectives: The level of mitigation being targeted
  For each identified impact, the specialists provided mitigation objectives, which would result in a measurable reduction of the impact. Where limited knowledge or expertise exists on such mitigation, the specialists consulted with other specialists on the team failing which the specialists again made a judgement call based on his/her professional experience.
- Recommended mitigation measures
  For each impact identified, the specialist recommended practicable mitigation actions that can measurably affect the significance rating. The specialists also identified management actions that could enhance the condition of the environment. Where no mitigation is considered feasible, this was stated and reasons provided.

- Effectiveness of mitigation measures
  The specialists provided quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible, as this will be utilised when drafting the monitoring component of the EMP.

- Recommended monitoring and evaluation programme
  The specialists recommended an appropriate monitoring and auditing programme, which would be able to track the efficacy of the mitigation objectives. Each environmental impact was assessed before and after mitigation measures are implemented in order to illustrate how effective or not mitigation will be. The management objectives, design standards etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits were expressed as measurable targets where possible.

Once the above objectives are stated, feasible management actions, which can be applied as mitigation, were provided. A duplicate column in the impact assessment tables indicated how the application of the proposed mitigation or management actions has reduced the impact.

Recommendations for mitigation measures are to be (applied by Eskom or alternatives proposed to ensure that the final mitigation measures stated in the EMP can be implemented.

8.6 Specialist Peer Reviews

All reports produced during the Scoping and EIA Phase of the EIA was peer reviewed for internal quality control purposes. The comments provided were considered and incorporated into the final draft of the specialist reports prior to releasing to the public for comment. These reviews provided the EAP with an additional quality check, ensuring that all reports are objective and scientifically accurate. A comprehensive review panel was established, which included specialists in the respective specialist fields for all specialist studies **(Table 8-2)**. Further peer reviews include legal review specialists and a process review specialist. In addition to the peer review of specialist reports, a comprehensive review of the EIA process and Draft EIR Version 1 was been performed. The results from this peer review were used to inform the Revised Draft EIR Version 2.

Please refer to Appendix E37 for the specialist peer review reports.

Table 8-2: Peer review team

Team Leader	STUDY	ORGANISATION
Garry Paterson	Agricultural	ARC
Martin van Nierop	Air Quality	Gondwana Environmental Solutions
Stephen van Staden	Botany, Vertebrate Fauna, Invertebrate Fauna and Wetland/Fresh Water Ecology	Scientific Aquatic Services
Izac Rust	Dune Geomorphology	-
Dr Johan Botha	Economic	-
DR C Bain	Radiological Impact Assessment, Beyond Design Accident Report	-
Deon Vrey	Transmission Integration	Aurecon
Dr Jaco Nel/ Alkie Marais	Geotechnical, Seismic and Geological Risk	GCS Water and Environmental Consultants
Stephan Gaigher	Heritage	G&A Heritage
Dr Jaco Nel/ Alkie Marais	Hydrology, Geohydrology and Freshwater Supply	GCS Water and Environmental Consultants
Barry Clark	Marine	Anchor Environmental
John Hassall	Noise	JH Consulting
Prof Frank Shillington	Oceanography Report	UCT
Robin Heard	Waste Report	Rob Heard Consulting Services
Ilse Aucamp	Social	Equispectives Research & Consulting

Arrie Horn	Tourism	Areyeng Africa
Theo Pretorius	Town Planning	Plan Associates
Hein Stander	Transport	Aecom
Elmie Weideman & Reuben Heydenrych	Visual Impact	Aurecon

The peer reviewers were required to carry out the following:

- Assess the relevant specialist study report in terms of its fulfilment of the Terms of Reference set;
- Consider whether the report is entirely objective;
- Consider whether the report is technically, scientifically and professionally credible;
- Consider whether the method and the study approach is defensible;
- Identify whether there are any information gaps, omissions or errors;
- Consider whether the recommendations presented are sensible and present the best options;
- Consider whether there are alternative viewpoints around issues presented in the report and if these are clearly stated;
- Consider whether the report were compiled in line with the legislations and by-laws;
- Consider whether the style of the report is written so as to make it accessible to non-specialists, technical jargon is explained and impacts are described using comparative analogies where necessary; and
- Report on whether normal standards of professional practice and competence have been met.

The peer review team's *Curricula Vitae* can be found in **Appendix E1**.

8.7 Key Conclusion of Specialist Peer Review Reports

All Peer Review specialists had concluded that the specialist studies conducted for the proposed Nuclear-1 power station was adequate for this EIA process and not fatally flawed.

However the following specialist studies have been updated to address the peer review comments:

- Hydrological Assessment;
- Geohydrological Assessment; and
- Fresh Water Supply Assessment.

Please refer to Appendix E37 for the peer review reports.