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PROPOSED POWER STATION AND ASSOCIATED INFRASTRUCTURE IN THE WITBANK GEOGRPAHICAL AREA

Plan of Study for EIA

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PROPOSED POWER STATION AND ASSOCIATED INFRASTRUCTURE IN THE WITBANK GEOGRAPHICAL AREA

Draft Plan of Study for EIA

1 BACKGROUND TO THE STUDY[1]

Eskom has embarked on a capacity expansion programme in order to meet South Africa's growing electricity demand. In keeping with national policies and plans and Eskom's strategic planning, various demand- and supply-side options are being investigated. Both national strategic planning (through the Department of Minerals & Energy's (DME) Integrated Energy Plan and the National Energy Regulator of South Africa's (NERSA) National Integrated Resource Plan) and Eskom's internal Integrated Strategic Electricity Planning (ISEP) have determined that the coal-fired option of generating electricity would still be required over the next 20 years.

Should electricity demand continue to increase at an average of 2.8% each year, new base load[2] supply would be needed by 2010. As a consequence, Eskom proposes constructing a coal fired power station and associated infrastructure in the Witbank area, Mpumalanga.

The Witbank area has been identified as one of three potential areas for the construction and operation of coal fired power stations. Feasibility studies, including Environmental Impact Assessments (EIAs), are currently also being undertaken for coal-fired power stations in the Lephalale area in the Limpopo Province and in the northern Free State. All three power stations would need to be constructed in order to meet the projected electricity demand. This EIA process is being undertaken for the proposed power station in the Witbank area only.

The proposed activities trigger the Environment Conservation Act (ECA) (No. 73 of 1989) and accordingly authorisation is required from the competent environmental authority. Consequently, Ninham Shand was appointed by Eskom to undertake the legislated Environmental Impact Assessment (EIA) process outlined in Regulation R 1183 of the ECA.

The EIA process commenced in March 2006 with the submission of an Application Form to the Mpumalanga Department of Agriculture and Land Administration (MDALA), as required by the legislation. The Plan of Study for Scoping was submitted on 12 April 2005. Due to the fact that the proponent, Eskom, is a state owned enterprise, the competent authority is the national Department of Environmental Affairs and Tourism (DEAT).

1 Detailed background information is provided in the Scoping Report and accordingly only the essential elements are reiterated here.

[2] Base load refers to the electricity generated to meet the continuous need for electricity at any hour of day or night

The first phase of the EIA process, the Scoping Phase, culminates in the production of a Scoping Report which identifies the array of potential environmental impacts and project alternatives which require more detailed investigation. This Plan of Study for EIA (PoSEIA) has been included in the Scoping Report, in order to facilitate public comment on the scope of work envisaged for the second phase of the EIA process, i.e. the EIA Phase. In reviewing the Scoping Report, DEAT will also review the PoSEIA.

2 PURPOSE OF THIS PLAN OF STUDY FOR EIA

This PoSEIA has been compiled in terms of the DEAT "*Guideline Document for the Implementation of Sections 21, 22 and 26 of the Environment Conservation Act*" (April 1998) and its purpose is to ensure that the next phase of this EIA process satisfies the requirements of DEAT.

At this point, it may be pertinent to clarify the terminology used in the current EIA process:

- The overall process is referred to as the Environmental Impact Assessment (EIA) process;
- This process is composed of three phases:
  - The Initial Application Phase;
  - The Scoping Report Phase; and
  - The Environmental Impact Assessment or EIA Phase

This PoSEIA outlines the anticipated process and products for the EIA Phase of the EIA process.

3 THE PLAN OF STUDY FOR EIA

3.1 DESCRIPTION OF THE ACTIVITY

The nature of the activity is described in detail in the Scoping Report, but in brief it comprises the construction and operation of a coal-fired power station and associated infrastructure in the Witbank area. The power station itself would comprise six generating units) fuelled by pulverised fuel (coal), each generating approximately 900 MW of electricity nominally. Apart from the power station buildings themselves (including admin buildings, a medical centre etc.), there would be various ancillary infrastructure including:

- A high voltage (HV) yard within the power station precinct ;
- Water supply pipelines (temporary and permanent);
- Water and wastewater treatment facilities;
- Temporary electricity supply (during construction phase);
- Ash disposal systems;
- Coal stockyard and handling facilities;
- General storage and handling facilities
- Conveyance systems for ash and coal;
- Access roads; and
- Dams for the storage of "clean" and "dirty" water.

3.2 DESCRIPTION OF TASKS TO BE PERFORMED

3.2.1 Potential Environmental Impacts Identified during Scoping

The Scoping investigation has reviewed the full range of potential environmental impacts associated with the proposed activities. Pursuant to this assessment, which was based on input from the authorities, interested and affected parties (I&APs) and various professionals, a shortlist of potentially significant environmental impacts were identified for further, more detailed, investigation during the EIA Phase. Specifically, the potential environmental impacts are described in Chapter 5 of the Scoping Report.

3.2.2 Method for Assessing the Significance of Potential Environmental Impacts

This section outlines the proposed method for assessing the significance of the potential environmental impacts outlined in Chapter 5 of the Scoping Report. These include both operational and construction phase impacts. For each impact, the EXTENT (spatial scale), MAGNITUDE and DURATION (time scale) would be described. These criteria would be used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the EIR would represent the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.[3]

The tables on the following pages show the scale proposed to be used to assess these variables, and defines each of the rating categories.

Table 1: Assessment criteria for the evaluation of impacts

CRITERIA	CATEGORY	DESCRIPTION
Extent or spatial influence of impact	**Regional**	Beyond a 10 km of the site boundary
	Local	Within a 10 km of the site boundary
	Site specific	On site or within 10 m of linear infrastructure corridors
Magnitude of impact (at the indicated spatial scale)	**High**	Natural and/ or social functions and/ or processes are *severely* altered
	Medium	Natural and/ or social functions and/ or processes are *notably* altered
	Low	Natural and/ or social functions and/ or processes are *slightly* altered
	Very Low	Natural and/ or social functions and/ or processes are *negligibly* altered
	Zero	Natural and/ or social functions and/ or processes remain *unaltered*
Duration of impact	**Construction period**	Up to 5 years
	Medium Term	0-10 years after construction
	Long Term	More than 10 years after construction

[3] The proponent will be requested to indicate at the Draft EIR stage which mitigation measures are feasible to implement.

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. The means of arriving at the different significance ratings is explained in Table 2.

Table 2: Definition of significance ratings

SIGNIFICANCE RATINGS	LEVEL OF CRITERIA REQUIRED
High	• High magnitude with a regional extent and long term duration • High magnitude with either a regional extent and medium term duration or a local extent and long term duration • Medium magnitude with a regional extent and long term duration
Medium	• High magnitude with a local extent and medium term duration • High magnitude with a regional extent and construction period or a site specific extent and long term duration • High magnitude with either a local extent and construction period duration or a site specific extent and medium term duration • Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Low magnitude with a regional extent and long term duration
Low	• High magnitude with a site specific extent and construction period duration • Medium magnitude with a site specific extent and construction period duration • Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Very low magnitude with a regional extent and long term duration
Very low	• Low magnitude with a site specific extent and construction period duration • Very low magnitude with any combination of extent and duration except regional and long term
Neutral	• Zero magnitude with any combination of extent and duration

Once the significance of an impact has been determined, the PROBABILITY of this impact occurring as well as the CONFIDENCE in the assessment of the impact would be determined, using the rating systems outlined in Tables 3 and 4 respectively. It is important to note that the significance of an impact should always be considered in concert with the probability of that impact occurring.

Table 3: Definition of probability ratings

PROBABILITY RATINGS	CRITERIA
Definite	Estimated greater than 99 % chance of the impact occurring.
Highly probable	Estimated 80 to 99 % chance of the impact occurring.
Probable	Estimated 20 to 80 % chance of the impact occurring.
Possible	Estimated 1 to 20 % chance of the impact occurring.
Unlikely	Estimated less than 1 % chance of the impact occurring.

Table 4: Definition of confidence ratings

CONFIDENCE RATINGS	CRITERIA
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

3.2.3 Need for Additional Information: Specialist Studies

In discussion with the proponent, authorities and I&APs, several impacts have been identified as being of particular concern. Accordingly, it is proposed to utilise the following specialists to address the following issues:

• Air quality impacts	AirShed Planning Professionals
• Noise impacts	Jongens Keet Associates
• Visual impacts	Strategic Environmental Focus
• Impacts on flora and fauna	Makecha Development Association
• Impacts on aquatic ecosystems	Ecosun
• Groundwater impacts	Groundwater Consulting Services
• Risk assessment	Ilitha Riscom
• Heritage impacts	Northern Flagship Institution
• Impacts on agricultural potential	University of the Free State
• Socio-economic impacts	Urban-Econ
• Planning impacts	Seaton Thomson and Associates
• Traffic impacts	Ninham Shand: Roads
• Geotechnical constraints	Ninham Shand: Geotech

The draft Terms of Reference for these specialist investigations are detailed below. As a consequence, I&APs have the opportunity to comment on the various Terms to Reference.

3.2.3.1 Air quality impacts

- Participate in the site selection process.

- Establish baseline conditions, by:
  - Describing the atmospheric dispersion potential of the area based on available meteorological data.
  - Describing existing sources of atmospheric emissions in the area.
  - Describing the existing air quality, especially with respect to particulates, oxides of sulphur and oxides of nitrogen.
  - Providing an overview of legislative and regulatory requirements pertaining to atmospheric emissions and ambient air quality guidelines and standards.
  - Initial screening dispersion modelling of power station configuration scenarios to provide input into air pollution abatement technology alternatives that may be considered.

- Predict potential impacts of the proposed power station by:
  - Compiling a comprehensive emissions inventory for the construction and operational phases of the project and taking into account:
    - Two operating scenarios:
      - 6 x 900 MW, pulverised fuel, supercritical, with FGD,
      - 6 x 900 MW, pulverised fuel, supercritical, without FGD,
    - Construction phase emissions e.g. site clearance and earthworks
    - Operational phase emissions e.g. ashing operations, raw materials handling, waste disposal and power station stack emissions,
    - Emissions during routine, upset and emergency conditions,
    - Emissions during shutdowns,
  - Selecting and populating of a suitable air dispersion model,
  - Undertaking stack height screening modelling to inform recommendations regarding a suitable stack height (stacks being either conventional, or "inserted" within the cooling towers),
  - Applying the air dispersion model to determine incremental and cumulative pollutant concentrations in the ambient air as a result of both the construction and operational phases of the proposed power station,
  - Assessment of air quality impacts including:
    - Evaluating estimated emissions,
    - Comparing estimated emissions to local and international limits,
    - Evaluating emissions in terms of global warming potential, within the context of South Africa's last reported contribution to greenhouse gases,
    - Evaluating (a) magnitude, frequency of occurrence, duration and probability of impacts, (b) local, regional national and international significance of predicted impacts, and (c) level of confidence in findings,
  - Recommendation of mitigation measures to address predicted impacts.
  - Providing insight into site selection by comparing the air quality implications, with and without mitigation measures, of the alternative sites.

- Compile an air quality assessment report that documents the tasks mentioned above.

- Compile an air quality management plan in consultation with Ninham Shand and Eskom, for incorporation into the construction and operational phase Environmental Management Plan (EMP) to be developed for the proposed power station. The air quality management plan would include:
  - Identification of mitigation and management measures to meet required control efficiencies,
  - Liaising with Eskom to determine stack height, and
  - Documentation of the monitoring, mitigation and management measures for integration into the project EMP.

3.2.3.2 Noise impacts

- Preliminary general assessment, including:
    - Collection of baseline information from ground-truthing, Ninham Shand and Eskom;
    - Determine layout of proposed power station within the identified alternative sites;
    - Determine details of planned operations at the proposed power station,
    - Accessing and referring to the Traffic Specialist Study;
    - Accessing existing noise measurement/ analysis data within the study sites and/ or at a similar power station;
    - Accessing information from the Public Participation Process regarding noise concerns;
    - Undertaking a site visit to ascertain potential noise sensitive areas in co-operation with the socio-economic specialist;
    - Identify other major noise sources in the vicinity of the two alternative sites; and
    - Identify appropriate noise measurement sites.

- Establishing the ambient noise context at each of the two alternative sites by means of a field inspection and noise measurement survey, focussing specifically on identified noise sensitive areas. This will include:
    - Undertaking noise measurements in terms of SANS 10103:2003, "The measurement and rating of environmental noise with respect to land use, health, annoyance and speech communication";
    - Assessing and recording the qualitative nature of the noise climate i.e. to ensure a correlation between noise perceived by the human ear and noise measured by instruments; and
    - Reviewing any existing noise survey data undertaken by Eskom.

- Assessing the potential noise impacts of the proposed power station on the ambient noise levels at each of the two alternative sites. This will include:
    - Identifying potential noise impacts associated with the construction and operational phases of the proposed power station;
    - Assessing the impacts of the proposed power station and evaluating the effect on the change in the noise climate; and

- Identify mitigation measures to minimise or eliminate predicted impacts on noise receptors. This will include providing input into the construction and operational phase EMP to be developed for the project.

- Compile a report that reflects on the above and which offers an opinion on the preferred site, with and without the implementation of mitigation measures.

3.2.3.3 Visual impacts

- Participate in the site selection process.

- Source and review baseline information and participate in the finalisation of these terms of reference.

- Undertake a subsequent site visit(s) and compile a report that considers the two proposed sites and addresses the following:
    - Description of the receiving environment;
    - Establishment of a view catchment area, view corridors, view points and receptors;
    - Indication of potential visual impacts (including lighting impacts at night) using established criteria;
    - Description of alternatives, mitigation measures and monitoring programmes; and
    - Complete 3D modelling and simulations for the two alternative sites. The modelling and simulations should demonstrate:
        - Views with and without mitigation;
        - Views under worst (least visible) and best (most visible) weather conditions;
        - Views during night time;
        - Views under varying operating scenarios; and
    - Offer an opinion on a preferred site from a visual impact perspective.

3.2.3.4 Impacts on terrestrial flora and fauna

- Participate in the site selection process.

- Source and review baseline information and participate in the finalisation of these terms of reference.

- Undertake a subsequent site visit(s) and compile a report that considers the two proposed sites and addresses the following[4]:
    - Broad description of the ecological characteristics of the sites and surrounds;
    - Identification and description of biodiversity patterns at community and ecosystem level (main vegetation type, plant and animal communities in vicinity and threatened/vulnerable ecosystems species), species level (Red Data Book species, presence of alien species) and in terms of significant landscape features;
    - General comment on whether biodiversity processes would be affected (including comment on how it would be affected);
    - Identification of potential impacts and recommendations to prevent or mitigate these;
    - Offer an opinion on a preferred site in terms of terrestrial fauna and flora, with and without mitigation measures; and
    - Indication of the salient elements of the report on a map, which is to be included as part of the specialist report.

[4] Partially derived from the Botanical Society of SA Conservation Unit's *Recommended Terms of Reference for the Consideration of Biodiversity in Environmental Assessment and Decision-making*. March 2005.

- Liaise with the aquatic ecosystem specialist to ensure a holistic understanding of the likely impacts on both aquatic and terrestrial flora and fauna.

3.2.3.5 Impacts on aquatic ecosystems

- Participate in the site selection process.

- Source and review baseline information and participate in the finalisation of these terms of reference in consultation with Ninham Shand and the terrestrial ecologist.

- Undertake a subsequent site visit and compile a report that considers the two proposed sites and reflects the following:
  - Broad description of the aquatic ecology of the site and surrounding wetlands and streams;
  - Identification and description of biodiversity patterns at community and ecosystem level (plant and animal communities in the vicinity and threatened/vulnerable ecosystems species), species level (Red Data Book species, presence of alien species) and in terms of significant landscape features (e.g. wetlands);
  - Aquatic assessment and habitat classification;
  - Wetland and aquatic status assessment;
  - General comment on whether biodiversity processes would be affected (including comment on how these would be affected);
  - Identification of potential impacts and recommendations to prevent or mitigate these;
  - Offer an opinion on a preferred site in terms of aquatic ecosystems, with and without mitigation measures; and
  - Delineation of aquatic ecosystems, as well as their ecological significance, on a map, which is to be included in the report.

3.2.3.6 Groundwater impacts

- Participate in the site selection process.

- Undertake a baseline review, including a literature review, to establish the status quo of quality and quantity of groundwater resources at the two alternative sites.

- Evaluate the data collected, and if necessary, undertake fieldwork to address any shortfalls in the existing data.

- Undertake an assessment to predict potential impacts, as well as their significance, of the proposed power station and associated infrastructure on groundwater.

- Assess in detail the groundwater impacts of the three proposed means of ash disposal:
    - Above ground dumping;
    - Back ashing; and
    - In-pit ashing.

- Assess in detail the potential groundwater impacts of other activities associated with the power station, including fuel and chemical storage.

- Propose mitigation measures that could reduce or eliminate identified impacts.

- Offer an opinion on which of the alternative means of ash disposal would be preferable from a groundwater perspective, with and without mitigation measures.

- Offer an opinion on site layout within each of the alternative sites.

- Offer an opinion on the preferred site from a groundwater quality and impact perspective, with and without mitigation measures

- Compile a report that reflects the above and includes appropriate mapping.

3.2.3.7 Risk assessment

- Conduct a preliminary risk assessment that will review the scope of the proposed coal fired power station and associated infrastructure and list hazardous materials.

- Estimate “worst case” scenario impacts:
    - on the health of on-site employees; and
    - with respect to off-site incidents at each of the two alternative sites.

- Describe mitigation measures that could reduce and/ or eliminate risk.

- Compile a report that reflects the above and includes appropriate mapping of risks.

3.2.3.8 Heritage impacts

- Participate in the site selection process.

- Source and review baseline information and participate in the finalisation of these terms of reference.

- Conduct a heritage study of the two proposed sites in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999). This would include:

- Conducting a desk-top investigation of the area; and
- A visit to the proposed development sites.

- Compile a report which would:
  - Identify possible archaeological, cultural and historical sites within the proposed development areas;
  - Identify the potential impacts of construction, operation and maintenance of the proposed development on heritage resources;
  - Offer an opinion on a preferred site in terms of heritage resources, with and without mitigation measures;
  - Recommend mitigation measures to ameliorate any negative impacts on areas of heritage significance; and
  - Include a map that illustrates the salient aspects of the report

3.2.3.9 Impacts on agricultural potential

- Participate in the site selection process.

- Undertake a baseline review, including a literature review, to establish the status quo of agricultural resources within the study area and at each of the two alternative sites.

- Evaluate the data collected, and if necessary, undertake fieldwork to address any shortfalls in the existing data.

- Undertake an assessment to predict potential impacts, as well as their significance, of the proposed power station and associated infrastructure on agricultural potential in the area and at each of the alternative sites.

- Propose mitigation measures that could reduce or eliminate identified impacts.

- If required, liaise with other specialists in order to supplement your study with information from their area of expertise.

- Offer an opinion on which of the two alternatives would be preferable from an agricultural potential perspective.

- Compile a report that reflects the above and includes appropriate soil mapping.

3.2.3.10 Socio-economic impacts

- Participate in the site selection process.

- Undertake primary and secondary research to establish baseline socio-economic conditions at two alternative sites, including:
  - Engagement with local communities with respect to socio-economic

issues (in this regard it may be appropriate to liaise with the public facilitation specialist);
- Identifying up- and down-stream activities that may be influenced by the proposed power station;
- Socio-economic and economic profiling for the alternative sites; and
- Socio-economic and business/ commerce surveys, as required, for each of the alternative sites, in order to update the above-mentioned profiles.

- Undertake a socio-economic and economic impact assessment of the proposed power station taking the two alternative sites into account, and including a consideration of:
  - Both construction and operational phase impacts;
  - Direct and indirect impacts;
  - Induced impacts;
  - Cumulative impacts (additive, synergistic, time crowding and space crowding);
  - Duration of impacts;
  - Mitigation measures to reduce or eliminate predicted negative impacts; and
  - Measures to enhance predicted positive impacts.

- Compile a report that reflects on the above and offers an opinion on a preferred site.

3.2.3.11 Planning impacts

- Participate in the site selection process.

- Review all baseline planning information for the area, including the relevant Spatial Development Frameworks and Integrated Development Plans.

- Evaluate the implications of the proposed coal fired power station and associated infrastructure within the context of the above-mentioned planning documents.

- Determine if there are any development proposals, policies, township applications and/ or zoning applications approved, or are in the process of being considered for approved for the study area.

- Determine if there any other land use proposals or land claims for the alternative sites and their immediate surroundings.

- Assess the implications that the proposed coal fired power station and associated infrastructure may have for the above-mentioned development/ land use policies, plans, applications, proposals and approvals.

- Provide advice and recommendations with respect to any land use/ planning processes that need to be undertaken as a consequence of existing zoning or town planning schemes.

- If required, liaise with other specialists in order to supplement your study with information from their area of expertise.

- Offer an opinion on which of the two alternative sites would be preferable from a planning perspective.

- Compile a report that reflects the above and includes appropriate mapping.

3.2.3.12 Traffic impacts

- Undertake a site visit, taking cognisance of the two alternative sites in the study area.

- Undertake a review of existing information and conceptual plans of the study area.

- Liaise with Eskom to determine proposed road alignments and intersections with existing transport infrastructure.

- Identify and assess the significance of potential impacts of the proposed power station and associated infrastructure on the existing transport network in the study area.

- Propose mitigation measures that could reduce or eliminate identified impacts.

- If required, liaise with the planning specialist to supplement the study with information from their area of expertise.

- Offer an opinion on which of the two alternatives would be preferable from a traffic impact perspective.

- Compile a report that reflects the above and includes appropriate mapping.

3.2.3.13 Geotechnical constraints

- Undertake a desk-top study of existing geological and geotechnical information, including published maps, data and aerial photography.

- Liaise with Eskom to attain geological/ geotechnical information from existing power stations in the area.

- Identify and assess the significance of potential geotechnical constraints to the proposed power station and associated infrastructure at each of the two

alternative sites.

- Propose mitigation measures that could reduce or eliminate identified constraints.

- Describe how the existing geotechnical conditions at each site could benefit the proposed project e.g. suitable sites for ash dumping where a layer of rock would prevent possible groundwater contamination.

- Liaise with the groundwater specialist to supplement your study with information from their area of expertise.

- Offer an opinion on which of the two alternatives would be preferable from a geotechnical perspective.

- Compile a report that reflects the above and includes appropriate mapping.

3.2.4 Reasonable Project Alternatives Identified during Scoping

The Scoping investigation has reviewed a range of project alternatives associated with the proposed power station and associated infrastructure. Chapter 4 of the Scoping Report describes the screening of alternatives. The following reasonable project alternatives (as outlined in Section 4.3 of the Scoping Report) have been identified for further, more detailed investigation during the EIA Phase:

- Two alternatives sites;
- Layout alternatives within each site;
- Above ground ash dumping, in-pit ashing and back ashing;
- Wet and semi- dry FGD processes;
- Alternative alignments for the coal conveyor belt from the coal mine to the proposed power station;
- Alternative alignments for the water supply pipeline from the existing Kendal power station; and
- Alternative alignments for the access road between the proposed power station and the existing road network.

3.2.5 Public Participation Process

The purpose of the Public Participation Process would be to provide I&APs (key stakeholders and the public) with adequate opportunity to have input into the environmental process. The public participation process would include the following:

3.2.5.1 Public Comment on the Draft EIR

The Draft EIR (refer to Section 3.2.6 below) will be lodged at appropriate venues (including the Witbank public library, Phola public library, Johannesburg public library and the Kungwini and Delmas municipal offices) and on the Eskom website (www.eskom.co.za/eia). Registered I&APs will be notified of the lodging by means of letters, and given a 30-day period in which to comment on the report.

During the comment period, a public meeting would be held to enable I&APs to provide feedback on the draft report. The public meeting would be advertised in the local media and in the letters informing registered I&APs of the release of the Draft EIR.

The public comments would be consolidated into an Annexure of the EIR. This would take the form of an Issues Trail, which would summarise the issues raised and provide responses thereto. The draft report would then be revised in light of feedback from the public.

3.2.5.2 Opportunity for Appeal

All registered I&APs would be notified in writing of the release of the Record of Decision. They would be reminded of their right to appeal against DEAT's decision to the national Minister, in terms of the Environment Conservation Act.

3.2.6 The Environmental Impact Report

The purpose of the EIR would be to undertake a comparative assessment of the significance of the potential environmental impacts of the project alternatives outlined in Section 3.2.5 above. The EIR would thus include the following:

- A brief overview of the potential environmental impacts and reasonable alternatives identified during the Scoping Phase.
- A summary of the key findings of the various specialist studies.
- An overview of the public participation process conducted during the compilation of the EIR.
- A detailed assessment of the significance of the potential environmental impacts for the various project alternatives. This assessment, which would use the methodology outlined in Section 3.2.2, would be informed by the findings of the specialist studies, professional judgement of the environmental practitioners, inputs from the technical team and comment from the various I&APs.
- An overview of the full range of mitigation measures[5] including an indication of how these would influence the significance of any potential environmental impacts. These mitigation measures would be informed by the specialist studies, professional experience of the environmental practitioners, input from the technical team and comment received from the I&APs.
- A construction phase Environmental Management Plan (EMP) to minimise the impacts of the construction phase.
- A generic operational phase EMP, which would set environmental guidelines for the operation phase of the proposed power plant and associated infrastructure.

[5] As mentioned in previous documentation, while the full range of mitigation measures will be outlined, the benefits achieved need to be balanced against by incur large costs or other impacts, and accordingly the proponent will, based on the information provided and other technical and financial factors, motivate for the inclusion or exclusion of mitigation measures, together with a motivation for their preferred alterative in each case.

3.3 PROPOSED PROGRAMME

The Final Scoping Report is due to be submitted to DEAT on 2 October 2006. The Scoping Report will include this plan of study.

It is planned to release the Draft EIR in mid to late November 2006 and present it to the public at a Public Meeting in late November/ early December 2006. Submission of the Final EIR is planned for mid January 2006.

4 PERSONNEL

4.1 NINHAM SHAND

Mike Luger, a Director and the Environmental Discipline Head based at the Cape Town Office, has over twelve years of experience in the field of Integrated Environmental Management, both on a project and management level. Mike will act as Project Director and provide input and review at strategic intervals.

Brett Lawson has an MA in Environmental and Geographical Science, as well as diplomas in wildlife management, business management, environmental management and environmental auditing. He thus has considerable multi-disciplinary experience across the range of environmental sciences. Brett will act as Project Manager and be responsible for the day-to-day running of the project.

Kamal Govender*,* is a Senior Environmentalist Practitioner in the George Office. He completed an MSc degree in Environmental and Geographical Science at the University of Cape Town in 2004. Since joining Ninham Shand in 2000, he has been involved in the development of various Environmental Impact Assessments, the development and monitoring of Environmental Management Plans, and several Public Participation Processes. Kamal will assist Brett in the day-to-day running of the project.

Barend Smit, an Associate of Ninham Shand based in the Centurion Office, has over 15 years experience in the environmental field, including Environmental Impact Assessments, compilation and implementation of management plans and ISO 14000 Environmental Management Systems as well as environmental auditing, landscape design, tendering and construction supervision and rehabilitation of landscapes.

Dr Andrew Spinks, a Associate in the Cape Town Office, has a Doctorate in Zoology and undergraduate training in Botany. He has compiled and managed numerous environmental investigations, including Environmental Impact Assessments, Environmental Management Programme Reports and environmental constraints and opportunities reports. Dr Spinks has a particular interest in EMPs for civil construction activities, and has been intimately involved in integrating the EMP into the Tender Documentation.

Karen Shippey has 9 years experience as an Environmental Practitioner working in the environmental impact assessment, environmental management and policy fields. Her experience includes project design, project management, understanding of the

ecological, social and sustainable development requirements including specialist input co-ordination and process development. Ms Shippey has developed significant expertise in the field of public and community engagement. This includes specialist facilitation, development of consultation processes and conflict resolution. She is an Associate in the Environmental Department of the Cape Town office.

Lindiwe Gaika, a Candidate Environmental Practitioner in the Cape Town Office has completed a Masters Degree at the University of Western Cape. Her research studies considered conservation status of the biodiversity in protected areas in relation to socio-economic conditions. Her involvement in various projects has developed her interest in water resource management and community-based natural resources management. Ms Gaika will be assisting Karen Shippey in the Public Participation Process.

Klaas Janse van Rensburg has 30 years of experience in the project management of roads related projects including planning and design of roads, road maintenance management, road construction supervision, bridge construction supervision, traffic engineering, transportation engineering and airport planning and design. Responsible for the overall management of the company's roads and transportation related work in South Africa and abroad. He is also head of the Transport and Roads Business Unit of Ninham Shand.

Margaret Wynne is an Associate of Ninham Shand in Centurion, in the Geotechnical and Mining Section of the Heavy Engineering Business Unit. She is an experienced engineering geologist with expertise in the planning, execution and financial management of all geotechnical aspects of projects, including the preparation of cost estimates, undertaking desk studies and planning geotechnical investigations for roads and services, dams, tunnels and various structures. .

4.2 AIRSHED PLANNING PROFESSIONALS (AIR QUALITY IMPACT STUDY)

Yvonne Scorgie has over ten years of experience in the field of air pollution impact assessment and air quality management. Prior to becoming involved in private consultation she was a member of the Atmospheric Research Group based at the Schonland Research Centre for Nuclear Sciences at Wits University and actively involved in the development of atmospheric emissions inventory methodologies. Since joining the air pollution consulting field and subsequently starting Airshed Planning Professionals, she has undertaken numerous baseline characterisation studies and air pollution impact assessments and has provided extensive guidance to both industry and government on air quality management practices.

4.3 JONGENS KEET ASSOCIATES (NOISE IMPACT STUDY)

Derek Cosijn has 37 years of professional experience over a wide range of civil engineering, transportation planning, environmental and acoustic projects. Over the last 25 years Derek focused on aspects of transportation planning with specific emphasis, *inter alia*, on environmental and noise management and control. His area of special expertise is environmental noise (acoustical engineering). .

4.4 STRATEGIC ENVIRONMENTAL FOCUS (VISUAL IMPACT STUDY)

Eamonn O'Rourke is the Unit Manager for Landscape Architecture for SEF and is an experienced practitioner in the field of visual impact assessment.

4.5 ECOSUN (AQUATIC ECOSYSTEM IMPACT STUDY)

Dr J L Rall is a director of Ecosun cc, established in 1997, with the aim of providing industry with specialist ecological consultation services, based on sound scientific principles and to provide practical solutions to ensure sustainable utilization of natural resources. His expertise covers the areas of aquatic ecology, terrestrial ecology, aquatic toxicology and Ecological Risk Assessment.

4.6 GROUNDWATER CONSULTING SERVICES (GROUNDWATER IMPACT STUDY)

Andrew Johnstone is a director and principal hydrogeologist with GCS. He has 25 years professional experience and specialises in project management, exploration and design of wellfields in primary and secondary aquifers, mining related hydrogeology, Environmental Management Plans and EIAs, regional hydro-geological investigations and mapping, contamination and Environmental Due Diligence Investigations.

4.7 MAKECHA DEVELOPMENT ASSOCIATES (MDA) (TERRESTRIAL FLORA AND FAUNA IMPACT STUDY)

Dr Johann du Preez is an ecologist and environmental manager with MDA. He has authored numerous research articles and conducted a wide variety of impact assessments and environmental management plans since 1998. His key competencies are vegetation ecology, biomonitoring, impact assessment, environmental management and environmental education.

4.8 NORTHERN FLAGSHIP INSTITUTION (HERITAGE IMPACT STUDY)

Dr Johan van Schalkwyk is a Chief Researcher and Head of Department of Research at Northern Flagship Institution, which is part of the National Cultural History Museum. Johan is in charge of the Museum's section for Heritage Impact Assessment projects.

4.9 UNIVERSITY OF THE FREE STATE (AGRICULTURAL POTENTIAL STUDY)

Andries Jordaan is an agricultural economist and lecturer at the University of the Free State. He holds an MSc and has particular expertise in agricultural and environmental economics, rural development and agricultural extension. He has consulted widely in the Free State, Northern Cape and Mpumalanga, and has international experience in disaster risk management. Besides consulting, Andries also served as an agricultural extension officer.

4.10 SEATON THOMSON AND ASSOCIATES (PLANNING STUDY)

Judy Johnston is a registered town and regional planner, with a B.Sc in Town and Regional Planning, with 20 years planning in a diverse range of town, regional and environmental planning. She has worked in town, regional and environmental planning

for the former Transvaal department of Nature Conservation, for the Johannesburg City Council and for the Natal Provincial Town and Regional Planning Commission. She has also been involved in working for a private consultancy in town planning.

4.11 URBAN-ECON DEVELOPMENT ECONOMISTS (SOCIO-ECONOMIC IMPACT STUDY)

Ben van der Merwe has wide-ranging knowledge and experience in economic development analyses. His special field of interest relates to the utilisation and application of the input-output technique in the development milieu. He has conducted various multi-sectoral economic development studies, which incorporated liaison with communities to ensure local involvement. Due to his interest in economic modelling and research, he has extended his expertise in industrial complexes, input/output and impact analyses to address urban management and spatial economic problems.

4.12 ILITHA RISCOM (RISK ASSESSMENT STUDY)

Mike Oberholzer is a chemical engineer and director of Ilitha Riscom. He has over twenty years of experience as a metallurgist, process/ chemical engineer and technical manager. He is involved in a variety of work related to safety and risk issues in the process industry, covering chemicals, petrochemicals, iron and steel, pulp and paper, mining and metallurgical, nuclear and food industries.

4.13 MARK WOOD ENVIRONMENTAL CONSULTANTS (SPECIALIST REVIEW CONSULTANT)

Mark Wood has spent most of the past 19 years leading EIAs for major development projects. He has recently led the EIA team for all of the upstream EIAs (three separate projects) of Sasol's Natural Gas Project, including exploration, the development of the onshore gas fields and the transport of the gas from Mozambique to South Africa in an 860 km underground pipeline. He is currently a review consultant for the three largest transportation infrastructure project proposals in South Africa, and project auditor for the Bakwena Platinum Highway Project. He has extensive experience in both urban and rural environmental and social evaluation.

Copies of the relevant CVs can be found in Annexure E of the Scoping Report.

5 CONCLUSION

Ninham Shand, independent EIA consultants appointed by Eskom, believe that the process outlined in this draft PoSEIA is fully compliant with the requirements of sections 21, 22 and 26 of the Environment Conservation Act 73 of 1989, and the principles provided for by the National Environmental Management Act 107 of 1998.

Ninham Shand has the resources and relevant experience to undertake the approach outlined in this document to the satisfaction of both DEAT and I&APs.