



(For official use only)

**File Reference Number:**  
**Application Number:**  
**Date Received:**


Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

**Kindly note that:**

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
3. Where applicable **tick** the boxes that are applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The report must be compiled by an independent environmental assessment practitioner.
9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
11. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

**SECTION A: ACTIVITY INFORMATION**

Has a specialist been consulted to assist with the completion of this section?

	NO
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If YES, please complete the form entitled "Details of specialist and declaration of interest"

for appointment of a specialist for each specialist thus appointed:

Any specialist reports must be contained in **Appendix D**.

Eskom initiated an Environmental Impact Assessment (EIA), undertaken by Ninham Shand (Pty) Ltd, for the construction of a 4 800 MW Kusile Coal-Fired Power Station and associated infrastructure in the Witbank area, on approximately 2 500 ha of land on the Farm Hartebeesfontein 537 JR and the Farm Klipfontein 566 JR. The power station precinct includes the power station building, administration buildings (administrative, medical, maintenance, services) and the high voltage yard. The associated infrastructure applied for included water treatment works, wastewater treatment works, access roads, railway line, water supply pipelines, a coal stockyard, an ash disposal facility, a coal and ash conveyor system and water storage facilities.

During the EIA, extensive specialist studies on the impact of the station and its associated structures (including the Ash Dump facility) were conducted during the EIA. The specialist studies conducted included:

- Geotechnical study undertake by Ninham Shand;
- Traffic study undertaken by Ninham Shand;
- Air quality assessment undertaken by Airshed Planning Professionals;
- Visual impact assessment undertaken by Strategic Environmental Focus;
- Noise impact assessment undertaken by Jongens Keet Associates;
- Terrestrial ecology assessment undertaken Makecha Development Associates;
- Aquatic ecosystem assessment undertaken by EcoSun;
- Groundwater assessment undertaken by Groundwater Consulting Services;
- Heritage assessment undertaken by the Northern Flagship Institute;
- Agricultural potential assessment undertaken by the University of the Free State;
- Socio-economic assessment undertaken by Urban Econ;
- Wetland Delineation and impact assessment by Wetlands Consulting; and
- Planning study undertaken by Seaton Thomson & Associates.

The results of these studies were used to describe and assess the significance of the identified potential impacts associated with the proposed power station and associated infrastructure and are attached as an **Appendix D** to this report. Eskom held a meeting with the DEA on 3 August 2012 to discuss the amendment application that had been submitted for the two listed activities relating to the associated infrastructure that are now subject to this application. During the meeting Eskom was advised by the DEA that they should conduct a Basic Assessment for this purpose. The DEA informed Eskom that the Department will not be exempting Eskom from conducting specialist studies, but that the Department will accept the studies that have been conducted. The Specialists that drafted the reports will have to confirm that the information contained in the specialist reports is still relevant and valid. The specialists will also need to confirm in writing that the site has not undergone any drastic changes that will require new studies to be undertaken for the activities triggered and that the proposed activities will not cause any significant impact on the receiving environment. The confirmations are attached as **Appendix H** of this report.

### 1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail<sup>1</sup>:

The whole project entails the construction of a 4 800 MW Coal-Fired Power Station and associated infrastructure at Kusile, in the Witbank area, on approximately 2 500ha of land on the Farm Hartebeesfontein 537 JR and the Farm Klipfontein 566JR (See **Appendix A** for the site layout plan and Locality Map). This entails the construction of the following:

#### Power Station Precinct:

- i) Power station buildings;
- ii) Administration buildings (control buildings, medical, security, etc); and
- iii) High voltage yard.

#### Associated Infrastructure:

- i) Coal stock yard;
- ii) Coal and ash conveyors;
- iii) Water supply pipelines (temporary and permanent);
- iv) Water and waste water treatment facilities;
- v) Ash disposal system;
- vi) Access roads (including haul roads);
- vii) Dams for water storage; and
- viii) Railway siding and/or line for sorbent supply.

Kusile Power Station obtained an Environmental Authorisation (EA) in June 2007 which was revised in March 2008 under the Environment Conservation Act No. 73 of 1989 (ECA (Ref: 12/12/20/807)). The EA is included as **Appendix G**. Although a comprehensive authorisation was sought for the Kusile Power Station it appears that Eskom failed to apply for authorisation for specific listed activities in terms of the relevant environmental legislation. These listed activities included GNR386 1m and 4, which were subject to a Section 24G Rectification application. The construction of the ADDD and embankment culvert within a wetland and the crossing of the low integrity wetland by the pipeline and fence line did not form part of the S24G application as construction had not yet commenced. Hence it is now necessary to apply for environmental authorisation to include the construction within a wetland and the crossing of the low integrity wetlands.

The application is for two NEMA listed activities (in terms of the EIA Regulation 2010) which are as follows:

- Activity 11 of GN 544 for the:
  - construction of the ash dump dirty dam (ADDD) within a wetland
  - construction of the ash dump access embankment (with culvert) within a wetland
  - crossing of the wetlands by a pipeline between the ADDD and station dirty dams
  - crossing of wetlands by the fencelines around the Kusile ash dump and the Kusile power station
- Activity 18 of GN 544 for the:
  - infilling of soil and rock into a wetland for the construction of the ash dump access embankment (with culvert)
  - removal of soil located in a wetland for the construction of the ADDD and depositing ash waste material exceeding 5 m<sup>3</sup> into the wetland for storage purposes using a waste management facility.

The proposed ADDD and embankment culvert will impact on low and moderate integrity wetlands as reflected in the attached site layout plan attached as **Appendix A**.

### ***Ash Dump Dirty Dams and Settling Tanks***

Dirty stormwater collection drains will be provided within the ash dump footprint and around the dump perimeter. These surface channels, together with the sub-surface drains in the base of the ash dump above will drain into the ash dump dirty water settling tanks and storage dams. The final designs of these settling tanks and dams have not yet been completed, but it will be lined according to DWA approval and will comply with South African legal requirements, in particular GN704, as well as the Eskom URS.

### ***Ash Dump Embankment Culvert***

An access embankment must be constructed between the power station terrace and the planned 10-year Ash/Gypsum Co-Disposal Facility. This structure will provide access for various services (e.g. ash conveyor system, pipelines, access road). The access embankment will be located to the west of the main power station terrace, in the natural wetland in the non-perennial tributary of the Klipfonteinspruit. A culvert will be constructed under the ash dump embankment to accommodate the 1:100 instantaneous flood peak event. The embankment will consist of earth in-filling across the wetland and the culvert will consist of three parallel Armco KA46 culverts to pass all clean stormwater that is collected in the Coal Stockyard (CSY) stream diversion channel under the ash dump embankment. The culvert will have a capacity to pass the design flow of 83.5 m<sup>3</sup>/s while flowing partially full.

### ***Pipeline and Fenceline***

An emergency drain pipeline will be constructed between the ADDD and the Station Dirty Dam, which will cross the low integrity wetland to the south West of the Ash Dump. Options to (i) amend the ADDD layout and location; and (ii) of crossing at the ARMCO Culvert and Access Road were considered but none of these alternative proved to be feasible due to elevation constraints between structures. The slope along invert of the 525 mm diameter pipe is, on average, only a minimal 0.6 %. It must be noted that the wetland that will be crossed by the pipeline was crossed already by the project twice before.

The fencelines to be erected around the ash disposal facility and the power station will be in places be within 32 meters of some wetlands (Refer to **Appendix A** for the site layout plan). Crossing of the wetlands will be over the authorised diversion trench and the embankment.

The design description of the ADDD, fencelines, pipeline and embankment culvert is included as **Appendix I** to this report.

## **2. FEASIBLE AND REASONABLE ALTERNATIVES**

**“alternatives”**, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative

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must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

**Paragraphs 3 – 13 below should be completed for each alternative.**

An initial site selection study was undertaken by Eskom with the objective of describing the planning process that has resulted in the geographical area in question being identified for the purpose, as well as initially screening the five potential sites within the geographical area and identifying the two preferred sites that were the subject of the Environmental Impact Assessment.

Detailed assessments were undertaken for a number of specialist fields including groundwater, terrestrial ecology, and aquatic fauna and flora. In essence the overall recommendations which were made during the Environmental Impact Assessment Phase were that there is no clear distinction between the two sites as their environmental impacts are similar. The preferred site had the following advantages:

- The geology of the preferred site is such that it is unlikely to allow the rapid distribution of pollutants through the groundwater, specifically related to the disposal of ash;
- The preferred site supports a smaller area of high integrity wetlands and offers less wetland services than the alternative site;
- There are fewer sensitive noise receptors that are likely to be affected by a direct dry cooled power station at the preferred site;
- There is less land that is cultivated on the preferred site, especially with respect to irrigated land; and
- The net income per hectare at the preferred site is in excess of 20% lower than the net income per hectare on the alternative site.

While the differences are marginal, it was concluded that the establishment of a coal fired power station on the preferred site is likely to have fewer negative impacts on the biophysical and socio-economic environments. A further conclusion was that it would be important to consider technical, financial and other factors in deciding on which site to pursue.

The specific location of the power station, coal stockyard, above-ground ash disposal facility, road access and raw water pipeline corridors as initially identified on the preferred site were refined, to avoid impacting on high integrity wetlands.

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<sup>1</sup> Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

**3. ACTIVITY POSITION**

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

List alternative sites, if applicable.

**Latitude (S):                      Longitude (E):**

**Alternative:**

Alternative S1<sup>2</sup> (preferred or only site alternative)

25°	56.175'	28°	54.992'
0	'	0	'
0	'	0	'

Alternative S2 (if any)

Alternative S3 (if any)

**In the case of linear activities:**

**Alternative:**

**Latitude (S):                      Longitude (E):**

Alternative S1 (preferred or only route alternative)

Starting point of the activity

Middle/Additional point of the activity

End point of the activity

0	'	0	'
0	'	0	'
0	'	0	'

Alternative S2 (if any)

Starting point of the activity

Middle/Additional point of the activity

End point of the activity

0	'	0	'
0	'	0	'
0	'	0	'

Alternative S3 (if any)

Starting point of the activity

Middle/Additional point of the activity

End point of the activity

0	'	0	'
0	'	0	'
0	'	0	'

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

**4. PHYSICAL SIZE OF THE ACTIVITY**

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

**Alternative:**

Alternative A1<sup>3</sup> (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

**Size of the activity:**

25 000 000 m <sup>2</sup>
m <sup>2</sup>
m <sup>2</sup>

**Length of the activity:**

<sup>2</sup> "Alternative S.." refer to site alternatives.

<sup>3</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

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**Alternative:**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

m
m
m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

**Alternative:**

**Size of the  
site/servitude:**

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Alternative A1 (preferred activity alternative)	m <sup>2</sup>
Alternative A2 (if any)	m <sup>2</sup>
Alternative A3 (if any)	m <sup>2</sup>

### 5. SITE ACCESS

Does ready access to the site exist?

YES	
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If NO, what is the distance over which a new access road will be built

m	
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Describe the type of access road planned:

N/A
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Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

### 6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - rivers;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and the positions from where photographs of the site were taken.

### 7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.



**8. FACILITY ILLUSTRATION**

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

**9. ACTIVITY MOTIVATION**

**9(a) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	R169.7 billion
What is the expected yearly income that will be generated by or as a result of the activity?	R1.18 billion
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	800
What is the expected value of the employment opportunities during the development phase?	Not available
What percentage of this will accrue to previously disadvantaged individuals?	92.59%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Not available
What is the expected current value of the employment opportunities during the first 10 years?	Not available
What percentage of this will accrue to previously disadvantaged individuals?	Not available

**9(b) Need and desirability of the activity**

Motivate and explain the need and desirability of the activity (including demand for the activity):

<b>NEED:</b>			
1.	Was the relevant provincial planning department involved in the application?		NO
2.	Does the proposed land use fall within the relevant provincial planning framework?		NO
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		

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	<p>The area of the ash disposal facility site falls within areas designated for mining and agriculture, which are not covered by the SDF for Delmas. No other proposals are reflected, as spatial initiatives are generally focused on urban areas where there is pressure for change.</p> <p>The Nkangala District Municipality Integrated Development Plan 2006/2007-2010/211 is aligned with the Mpumalanga Provincial Government Provincial Growth and Development Strategy (PGDS), which was compiled in 2003 and serves as guideline to provincial departments and local government initiatives.</p> <p>Discussions with the relevant authorities in respect of any development proposals, policies or envisaged activities in the area of the site indicated that the areas are considered commercial farming areas and are envisaged to remain as such. Furthermore, as the areas also contain important coal reserves, these areas are not envisaged for any development in the foreseeable future. The remoteness of the site from any existing or future urban areas also means there are no plans for changing the land use, implementing any capital projects (services, etc) in the near future. Additionally, there are no applications currently lodged with the authorities for any forms of development, township establishment or subdivision of Agricultural land. Discussions also indicated that there are no known land claims in the area of the site.</p>
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<b>DESIRABILITY:</b>			
1.	Does the proposed land use / development fit the surrounding area?	YES	
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	YES	
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES	
4.	<p>If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:</p> <p>According to the Visual Impact Assessment, there are a number of power lines that transect the landscape and mining activities that are steadily encroaching the area from the east. These elements have severely degraded that visual quality of the regional landscape, although areas of less human intervention reflect a higher naturalness and visual appeal. A relatively large footprint will be modified during construction of the power station and its ancillary components, causing localized changes in land use which is considered incompatible with the prevailing rural and agricultural land use of the project area. The ash disposal facility will have a distinct colour contrast with the rest of the landscape. The freshly placed ash will appear light grey, contrasting with the green or dull yellow colours of the surrounding landscape. The visual contrast can however be mitigated through progressive rehabilitation of the facility.</p> <p>The area of the ash disposal facility site falls within areas designated for mining and agriculture, which are not covered by the SDF for Delmas. No other proposals are reflected, as spatial initiatives are generally focused on urban areas where there is pressure for change.</p>		
5.	Will the proposed land use / development impact on the sense of place?	YES	
6.	Will the proposed land use / development set a precedent?		NO
7.	Will any person's rights be affected by the proposed land use / development?		NO
8.	Will the proposed land use / development compromise the "urban edge"?		NO
9.	<p>If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.</p> <p>The power station and associated infrastructure will impact on the landscape character and sense of place. The Visual Impact Assessment study found that the above-ground ash disposal facility would represent a visual intrusion. The recommended mitigation relies on the use of muted colours on the façade. The remainder of the mitigation focuses on the ancillary project components to reduce the visibility of objects such as the ash disposal facility, coal stockyard and conveyor system. These project components can be mitigated with greater success and the associated impacts can be reduced effectively.</p>		

<b>BENEFITS:</b>			
1.	Will the land use / development have any benefits for society in general?	YES	
2.	Explain:		

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	The construction of the Kusile power station and associated infrastructure is a response by Eskom towards meeting South Africa's growing electricity demand, and entails the construction of a coal-fired power station and associated infrastructure in the Witbank geographical area.		
3.	Will the land use / development have any benefits for the local communities where it will be located?	YES	
4.	<p>Explain:</p> <p>During the construction phase, 55,560 employed person-years were expected to be created. This included direct jobs, i.e. construction workers and supporting services, as well as indirect jobs, i.e. jobs created within businesses that support companies directly involved in construction of and supply of material to the power station. The 55,560 employed person-years correlated with approximately 3,670 new direct jobs and 3,275 indirect employment opportunities created during the whole construction period (Urban-econ), 2006.</p> <p>Urban-econ determined that operational expenditure of R 2.06 billion per annum would lead to an increase in new business sales by an additional R 7.06 billion per annum. This included direct as well as indirect spin-offs. Approximately R 2.3 billion of new business sales was expected to be generated as a result of direct effects (Urban-econ, 2006).</p> <p>It was anticipated that 800 jobs would be created by the power station directly. At the same time, the operation of the power station by means of the multiplier effect was determined to create an additional 5,430 jobs. These jobs would be formed mainly in the trade, mining and transportation sectors. Thus, through direct and flow on effects the operating power station was determined to create 6,230 sustainable jobs. It was expected that the value-added would increase by R 2.67 billion per annum, of which R 1.18 billion would be generated directly by the operations of the power station (Urban-econ, 2006).</p>		

### 10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

LEGISLATION	ADMINISTERING AUTHORITY	DATE (if already obtained):
Environment Conservation Act (Act 73 of 1998)	Department of Environmental Affairs and Tourism	17 March 2008 Environmental Authorisation - 12/12/20/807
National Water Act (Act 36 of 1998)	Department of Water Affairs and Forestry	4 November 2008 Water Use Licence - 27/2/2/B620/101/8
National Water Act (Act 36 of 1998)	Department of Water Affairs and Forestry	17 July 2009 Water Use Licence - 24088274
National Water Act (Act 36 of 1998)	Department of Water Affairs and Forestry	17 July 2009 Water Use Licence - 27/2/1/C211/1/1

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National Water Act (Act 36 of 1998)	Department of Water Affairs and Forestry	13 October 2009 Water Use Licence – 27/2/2/B206/1/4
National Water Act (Act 36 of 1998)	Department of Water Affairs and Forestry	12 March 2010 General Authorisation – 16/2/7/B100/B174
National Water Act (Act 36 of 1998)	Department of Water Affairs and Forestry	12 April 2010 General Authorisation – 16/2/7/B100/B174
National Environmental Management Act (Act 107 of 1998)	Department of Environmental Affairs	26 July 2012 Environmental Authorisation- 12/12/20/2105
Rezoning application	Delmas Local Municipality	28 February 2008- Por 3 Klipfontein

**11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT****11(a) Solid waste management**

Will the activity produce solid construction waste during the construction/initiation phase?

YES	
50m <sup>3</sup>	

If yes, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

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General wastes produced will be disposed with commercial and domestic waste to the Emalaheni municipal waste disposal site. Hazardous waste will be disposed to the Holfontein HH-waste disposal site

Where will the construction solid waste be disposed of (describe)?

See above.

Will the activity produce solid waste during its operational phase?

	NO
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If yes, what estimated quantity will be produced per month?

m <sup>3</sup>	
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How will the solid waste be disposed of (describe)?

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

	NO
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If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?

	NO
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If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

**11(b) Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

	NO
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If yes, what estimated quantity will be produced per month?

m <sup>3</sup>	
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Will the activity produce any effluent that will be treated and/or disposed of on site?

	NO
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If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

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Will the activity produce effluent that will be treated and/or disposed of at another facility? 

YES	NO
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If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The ash dump dirty dam is the polluted water control facility for the ash disposal site – water collected will be used for dust suppression during the operational life of the site.

**11(c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?

YES	
YES	

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Initially Eskom conducted an amendment application to include the two NEMA listed activities that are now subject to this application. Eskom had a meeting with the DEA on 3 August to discuss the amendment application. During the meeting the DEA advised Eskom to conduct a Basic Assessment for the activities. It was also agreed that Eskom was not required to conduct additional specialist studies since that had been done during the 2006 EIA. However, the specialists that drafted the reports were required to verify that the information contained in the specialist report is still relevant and valid. The specialists were also required to confirm in writing that the site has not undergone any drastic changes that will require new studies to be undertaken for the activities triggered and that the proposed activities will not cause any significance impact on the receiving environment.

If no, describe the emissions in terms of type and concentration:

During construction, there will be particulate emissions (dust) related to debris handling; truck transport; materials storage, handling and transfer; open areas (windblown emissions). Air emissions are also expected to occur due to vehicle and construction equipment, exhaust fumes activity. However the implementation of appropriate mitigation measures would reduce the air emissions to remain within acceptable SABS levels.

The ash deposited may cause nuisance dust. Below are measures with which the dust will be mitigated::

**Dust Control & Irrigation Storage (Operating Storage)**

- Additional storage in the ADDD (ash dump dirty water storage dams) is provided for 72 hours of water for dust control and irrigation over the active disposal area and the rehabilitation establishment zone
- The dust control and irrigation storage volumes are based on 1 mm/day of equivalent rainfall. (1 mm/day is equivalent to 0.5 x the average annual daily rainfall at Kusile Site).
- The dust suppression for the paddocks will be performed by the sprinkler system and will need to cover the following areas simultaneously (at maximum):
  - Two paddocks. The paddocks will typically be 200 m x 200 m in length and width and will increase in height by 1 m intervals. The paddocks at the edge of the dump will typically be 100 m x 400 m in width and length and will increase in height by 1 m intervals. All paddocks are considered to have a footprint area of approximately 40 000 square meters.
  - All active side slopes (sprinklers to be placed along the crests of the side slopes diameter widths apart attached to drag lines enabling the sprinklers to be moved vertically along the side slopes).
  - A 300 m x 30 m area for irrigation to assist rehabilitation.
- The dust suppression system will have the capacity to fill the trucks/bowsers at the same time as covering the above areas with the sprinklers
- The maximum 72 hr dust suppression and irrigation volume is approximately 2 562 m<sup>3</sup>. The maximum pumping capacity from the ADDD is 37 l/s.
- Based on the maximum pumping capacity, the operating storage was set at 6 480 m<sup>3</sup>, which is equivalent to 72 hrs of pumping at 25 l/s.

Dust suppression of the dump area at finished height will be controlled by a 100 mm permeable blanket layer of gravel, followed by topsoiling and grassing. Rehabilitation establishment will take three years, developed progressively as each section of the dump is finalised



**11(d) Generation of noise**

Will the activity generate noise?

YES	
YES	

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Initially Eskom conducted an amendment application to include the two NEMA listed activities that are now subject to this application. Eskom had a meeting with the DEA on 3 August to discuss the amendment application. During the meeting the DEA advised Eskom to conduct a Basic Assessment for the activities. It was also agreed that Eskom was not required to conduct additional specialist studies since that had been done during the 2006 EIA. However, the specialists that drafted the reports were required to verify that the information contained in the specialist report is still relevant and valid. The specialists were also required to confirm in writing that the site has not undergone any drastic changes that will require new studies to be undertaken for the activities triggered and that the proposed activities will not cause any significance impact on the receiving environment.

If no, describe the noise in terms of type and level:

During construction, there will be some noise generated from the operation of noisy equipment and vehicles. However the implementation of appropriate mitigation measures included in the EMPr will reduce the Noise levels to remain within acceptable SANS levels.

According to the noise impact assessment specialist studies, the area of serious impact around the proposed power station will be fairly small (contained within a radius of about 6 kilometers). In addition to the study, weekly noise monitoring is implemented by external consultants

**12. WATER USE**

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

municipal	water board	groundwater	river, stream, dam or lake	Other <input checked="" type="checkbox"/>	the activity will not use water
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12 Mm<sup>3</sup> per annum of raw water will be piped to the power station from the VRESSAP pipeline via Kendal Power Station. Although this is not a direct abstraction for Kusile and Kendal already holds an allocation on the VRESAP pipeline, for completeness of this IWULA Eskom completed a 21(a) licensing form for this water use.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:

12 Mm <sup>3</sup>
YES

Does the activity require a water use permit from the Department of Water Affairs?

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

Proof is attached as **Appendix K**.

**13. ENERGY EFFICIENCY**

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Currently the construction site is comprised of temporary structures which have been built from

## BASIC ASSESSMENT REPORT

re-usable components. All material such as walls, flooring, windows, ventilation etc will be re-used at different parts of the site as the construction progresses.

Lighting utilized is energy efficient and conforms to the Eskom Energy Efficiency programme.

More detailed and structured energy efficiency measures will be implemented for the project as a whole once the site has been fully established.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Not applicable to the construction of the Ash disposal facility, pipeline, fenceline or embankment culvert

### SECTION B: SITE/AREA/PROPERTY DESCRIPTION

#### Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.

(e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?  **NO**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:  
All specialist reports must be contained in Appendix D.

Property description/physical address:

The Kusile Power Station is situated on R 545; Balmoral Road; Farm Hartbeestfontein 537JR and Farm Klipfontein 566JR, Mpumalanga. The ash disposal facility will affect Farm Klipfontein 566JR, Portions 0, 3, 10, 26 and 30

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

Not applicable

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:

Industry

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

## BASIC ASSESSMENT REPORT

Is a change of land-use or a consent use application required? Must a building plan be submitted to the local authority?

	NO
	NO

Locality map: An A3 locality map must be attached to the back of this document, as Appendix A.

The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g.

1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

an indication of the project site position as well as the positions of the alternative sites, if any;

road access from all major roads in the area;

road names or numbers of all major roads as well as the roads that provide access to the site(s);

all roads within a 1km radius of the site or alternative sites; and a north arrow;

a legend;  
and

locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)

### 1. GRADIENT OF THE SITE

2. Indicate the general gradient of the site.

#### Alternative S1:

Flat	1:50 1:20	–	1:20 1:15	–	1:15 – 1:10	1:10 1:7,5	–	1:7,5 – 1:5 <b>X</b>	Steeper than 1:5
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#### Alternative S2 (if any):

Flat	1:50 1:20	–	1:20 1:15	–	1:15 – 1:10	1:10 1:7,5	–	1:7,5 – 1:5	Steeper than 1:5
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#### Alternative S3 (if any):

Flat	1:50 1:20	–	1:20 1:15	–	1:15 – 1:10	1:10 1:7,5	–	1:7,5 – 1:5	Steeper than 1:5
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### 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline

2.2 Plateau

2.3 Side slope of hill/mountain

2.4 Closed valley

- 2.5 Open valley
- 2.6 Plain
- 2.7 Undulating plain / low hills**
- 2.8 Dune
- 2.9 Seafront

**3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE**

Is the site(s) located on any of the following (tick the appropriate boxes)?

	<b>Alternative S1:</b>		<b>Alternative S2 (if any):</b>		<b>Alternative S3 (if any):</b>	
Shallow water table (less than 1.5m deep)	<b>YES X</b>	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	<b>NO X</b>	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	<b>YES X</b>	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	<b>NO X</b>	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	<b>NO X</b>	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	<b>NO X</b>	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	<b>NO X</b>	YES	NO	YES	NO
An area sensitive to erosion	YES	<b>NO X</b>	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the

project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

**4. GROUNDCOVER**

Indicate the types of groundcover present on the site:

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup> <b>X</b> A few protected species were found in wetland communities: <i>Cyrtanthus breviflorus</i> and <i>Crinum bulbispermum</i> .	Natural veld with heavy alien infestation <sup>E</sup> Habitat diversity is low due to the presence of a high percentage of land covered by maize fields. Remaining patches of grassland is in a relatively degraded state due to grazing pressures. Species richness is also relatively low.	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land <b>X</b>	Paved surface	Building or other structure	Bare soil <b>X</b>

The site has been largely transformed due to human impacts. Vegetation is in an advanced state of degradation, has a low level of species diversity, a few species of concern were found on or around the selected sites. Mono-cultures of maize, wattles, and bluegums (exotics) have replaced the natural vegetation to a large extent. The area's ecological function is seriously hampered, has a very low conservation value and the potential for successful rehabilitation is low.

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

**5. LAND USE CHARACTER OF SURROUNDING AREA**

Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

- 5.1 Natural area
- 5.2 Low density residential
- 5.3 Medium density residential
- 5.4 High density residential
- 5.5 Informal residential<sup>A</sup>
- 5.6 Retail commercial & warehousing
- 5.7 Light industrial
- 5.8 Medium industrial

**AN**

5.9 Heavy industrial

**AN**

**5.10 Power station**

5.11 Office/consulting room

5.12 Military or police base/station/compound

5.13 Spoil heap or slimes dam<sup>A</sup>

5.14 Quarry, sand or borrow pit

5.15 Dam or reservoir

5.16 Hospital/medical centre

5.17 School

5.18 Tertiary education facility

5.19 Church

5.20 Old age home

5.21 Sewage treatment plant<sup>A</sup>

5.22 Train station or shunting yard<sup>N</sup>

5.23 Railway line<sup>N</sup>

5.24 Major road (4 lanes or more)<sup>N</sup>

5.25 Airport<sup>N</sup>

- 5.26 Harbour
- 5.27 Sport facilities
- 5.28 Golf course
- 5.29 Polo fields
- 5.30 Filling station **H**
- 5.31 Landfill or waste treatment site
- 5.32 Plantation
- 5.33 Agriculture**
- 5.34 River, stream or wetland**
- 5.35 Nature conservation area
- 5.36 Mountain, koppie or ridge
- 5.37 Museum
- 5.38 Historical building
- 5.39 Protected Area
- 5.40 Graveyard
- 5.41 Archaeological site
- 5.42 Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:

If YES, specify:

|

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:

If YES, specify:

|

|



**6. CULTURAL/HISTORICAL FEATURES**

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including	<b>YES</b>	
Archaeological or palaeontological sites, on or close (within 20m) to the site?	Uncertain	
If YES, explain:	There are two heritage houses on site that have not been affected by any activity onsite. Some graves were identified and exhumed.	
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.		
Briefly explain the findings of the specialist:	A heritage impact assessment was undertaken for the development by National Cultural History Museum. The report is attached as Appendix D.	
Will any building or structure older than 60 years be affected in any way?		<b>NO</b>
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		<b>NO</b>
If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.		

**SECTION C: PUBLIC PARTICIPATION**

**1. ADVERTISEMENT**

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and

- (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

## **2. CONTENT OF ADVERTISEMENTS AND NOTICES**

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
  - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
  - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
  - (iii) the nature and location of the activity to which the application relates;
  - (iv) where further information on the application or activity can be obtained; and
  - (iv) the manner in which and the person to whom representations in respect of the application may be made.

## **3. PLACEMENT OF ADVERTISEMENTS AND NOTICES**

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

## **4. DETERMINATION OF APPROPRIATE MEASURES**

## **BASIC ASSESSMENT REPORT**

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of

each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

**5. COMMENTS AND RESPONSE REPORT**

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

**6. AUTHORITY PARTICIPATION**

**Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.**

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

List of authorities informed:

To be completed following the completion of the public participation process.

List of authorities from whom comments have been received:

To be completed following the completion of the public participation process.

**7. CONSULTATION WITH OTHER STAKEHOLDERS**

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority. Proof of any such agreement must be provided, where applicable.

YES	NO
-----	----

Has any comment been received from stakeholders?

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

To be completed following the completion of the public participation process.

**SECTION D: IMPACT ASSESSMENT**

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

**1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES**

List the main issues raised by interested and affected parties.

To be completed following the completion of the public participation process.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

To be completed following the completion of the public participation process.

**2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES**

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

A number of specialist studies were conducted during the 2006 EIA, to determine and describe the impacts that the Power Station and its associated infrastructure would have on the environment. The assessment included quantification of these impacts from construction phase to operation phase. The specialist studies also included identification of mitigation measures and the quantification of impacts post mitigation. The accompanying supporting information report includes a summary of specialist studies relevant to this application and all the specialist reports are attached as an **Appendix D** to this report.

Furthermore, the following specialists also re-evaluated the impacts to confirm that the impacts have not changed from what was identified during the 2006 EIA:

- Visual Impact Specialist;
- Aquatic Ecology;
- Air Quality
- Noise;
- Groundwater; and
- Terrestrial Ecology.

All the above-mentioned specialists confirmed that the impacts or the significance of the impacts will not change from the impacts that were identified during the 2006 EIA. The confirmations from the specialists are attached as **Appendix H**.

**Alternative (preferred alternative)**

**IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE**

**Direct impacts:** No direct impacts are anticipated during the planning and design stage

**Indirect impacts:** No indirect impacts are anticipated during the planning and design stage

**Cumulative impacts:** No cumulative impacts are anticipated during the planning and design stage

**IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE**

None of the construction phase impacts were deemed to have a highly significant impact on the environment, given their relatively short duration and localised extent. However, many of the construction phase impacts were of medium significance and required mitigation interventions in order to avoid and minimise impacts on the biophysical and especially the human environment.

**Wetland Impact Assessment**

The wetland impact assessment conducted for the ash dump and ADDD identified the following construction phase impacts:

**Loss of Wetlands**

It was concluded that the ash dump on the current site will result in the loss of the hill slope seepage and the depression wetlands as these occur within the footprint of the ash disposal facility. The ADDD, access roads and the general construction activities will directly impact on the contact seepage. The ash dump will result in displacement of water responsible for the existence of the wetlands. The water feeding to the catchment will be used in the dirty or clean water systems that form part of the overall water management strategy for the ash disposal facility thereby depriving the wetlands of the water flow that supports them.

The impact was considered to be **high (-ve)**.

**Mitigation**

Unless the ash dump is relocated the impacts associated with the loss of wetlands and their function will be unavoidable. Eskom is currently investigating the possibility of rehabilitating and protecting the high integrity wetlands on the Kusile Project site. The water falling on site can be made available to support the main streams that drain the site.

**Erosion and Sedimentation**

The construction activities will require clearing of vegetation, thereby leaving soil exposed to erosion during rainfall events. The eroded sediment will most likely end up in the wetlands and streams and will contribute to the sedimentation in the valley bottom wetland down slope of the site, resulting in the reduction of the geomorphological condition as well as the water quality.

The impact is considered to be **low to moderate (-ve)**.

**Mitigation**

The following mitigation measures were identified:

- Limiting the extent of exposed soils;
- Minimising the construction footprint; and
- Using low level berms and sediment traps in low points to contain the extent of erosion and deposition of sediment.

### **Water Pollution**

The position of the ash disposal facility makes the wetlands and water resources susceptible to pollution during construction. Sources of pollution include dust generated during construction activities, sediments, leaked/spilled hydrocarbons, litter and construction materials.

The impact is considered to be **low to medium (-ve)**.

### **Mitigation**

- All hazardous products must be stored offsite or in bunded areas on site.
- Vehicles should be parked on impermeable surfaces
- Litter should be disposed of in appropriate waste bins
- All contaminated material must be disposed of at permitted waste disposal facilities.

### **Loss of biodiversity**

The development of the ash disposal will lead to the loss of all the wetlands and any populations or communities of species associated with or dependent on them.

The impact is considered to be **high (-ve)**.

### **Mitigation**

- Prevent unnecessary disturbance to the remaining flora and fauna by preventing thoroughfare through the wetlands and adjacent grasslands.
- Demarcate no-go areas to prevent unauthorised entrance.
- Offsite mitigation should be considered.

### **Disturbance of flora and fauna**

The site is mostly disturbed through agricultural activities, with little natural vegetation remaining. There are however a range of protected species occurring on the site, including six protected plant species and one red data bird species. During the construction phase, it is possible that the contractor would remove more vegetation cover than is required to establish the power station and its associated infrastructure, with the potential to impact on the identified protected plant species, with knock-on effects for the animals that utilise that habitat.

Given the limited extent of natural vegetation on site and the presence of protected plant species, the significance of impacts to terrestrial and aquatic fauna and flora was deemed to be **medium (-ve)**.

### **Mitigation**

Mitigation measures identified included:

- Defining all areas not directly required for the construction process to be declared 'no-go' areas;
- Cordoning off all 'no-go' areas and ensuring that they remain in an unaltered state for the duration of the construction phase;
- Removal and stockpiling of topsoil for the revegetation process; and
- Utilising natural vegetation found on the site, or that would typically be found on the site for the revegetation process, where possible.

With mitigation measures implemented, the significance of the impacts would be reduced to **low (-ve)**.

### **Impact on water resources**

The ash disposal facility will impact on some water resources. Construction activities will result in the removal of the vegetation covering, with the result that soil erosion is likely to increase. The additional soil is likely to end up in the rivers, wetlands and streams, causing an increase in the sediment load of those water resources. Furthermore, chemicals and materials used on site during the construction phase, such



as shutter oil, curing compounds, and diesel, if spilled could end up in the river systems. Increases in sediment load and pollution of the water through chemical spills would have a negative impact on the fish and invertebrates in the rivers. Furthermore, the farmers who utilise the water for irrigation and consumption would also be negatively affected by the pollution of their water source. Consequently, the impact on water resources during the construction phase is deemed to have a **medium (-ve)** significance.

### Mitigation

Mitigation measures are included in the attached EMP, and could include measures such as:

- Installation of silt traps to reduce the sediment loads in the river and streams of concern;
- Strict storage and handling of materials such as diesel, shutter oil and curing compounds;
- Always utilising a drip tray under stationary vehicles and other plant; and
- Developing an action plan for dealing with accidental spills of chemicals.

The impact of the construction activities on water resources in the area is deemed to have a **low (-ve)** significance with mitigation measures in place.

### Impact on livelihood security

There were farmers that cultivated the land on the site, mostly dry land agriculture and grazing. 86% of the people that lived on the project site were employed on the farms. The farm workers are often only skilled for the agricultural sector, and would struggle to find employment outside of that sector, without first gaining additional skills. The establishment of the power station could therefore result in the loss of employment for 54 of such people.

The study concluded that the impact of the power station on livelihood securities was likely to have a site specific extent, with a medium magnitude and would last for the duration of the construction phase, by which point the affected people were likely to have secured alternative employment or gained new skills as a result of the economic spin-offs of the power station development. Without mitigation, the significance of this impact was therefore considered to be **low (-ve)**.

### Mitigation

Mitigation measures identified included leasing excess land back to farmers whose land had been acquired, undertaking skills transfer activities with the displaced farm workers and giving preference to those displaced farm workers.

With mitigation measures in place, the magnitude of the impact would reduce to low with significance decreasing to **very low (-ve)**.

### Increase in traffic volumes

During the construction phase of the power station, between 2000 and 6000 people would be employed on site. Employees are likely to travel to work by private car, bus and minibus taxis. Further to the above, it is estimated that some 70 20-tonne trucks would visit the site each day, generating 140 vehicle trips per day. The N4 and N12 national roads would carry the majority of the heavy vehicles. Average annual daily traffic volumes were predicted to increase between 0.6 and 6.7 % across the existing road network above the future predicted traffic volumes for the duration of the construction period. The construction of the ash disposal facility is not expected to have a different impact from what was identified for the site.

The study found that the impact of construction traffic volumes was likely to have a medium magnitude, with a regional extent, and be limited to the construction phase. Consequently, the impact was likely to have a **medium (-ve)** significance.

### Mitigation

In order to mitigate the impacts of the power station on the road network, it was proposed that the road network in the area be resurfaced, upgraded or reconstructed, as required prior to the construction phase

of the power station. Special attention should be given to providing adequate drainage and subsurface drainage systems on all roads. Eskom would need to discuss the above with the Department of Transport and the relevant local authorities.

With mitigation measures implemented, the significance of this impact would be reduced to **low (-ve)**.

### Noise Pollution

Since the development of the proposed power station would span some 6 years, noise from the construction activity could become a significant issue. Construction would typically be carried out between 07h00 and 18h00; however some tasks would need to continue 24 hours a day, such as excavation dewatering. Specific activities may also require 24 hour shifts to complete the task.

The study found that the site would generate typical noise levels generated by a construction site, ranging from 64 dBA within a 100 m of the site, decreasing to 41 dBA 1000 m from the site. The noise limit of 45 dBA is likely to be achieved within a distance of 750 m from the site. For the construction of the linear infrastructure such as the internal and external access roads, typical noise levels at a distance of 15 m from the site are in the 75 to 100 dBA range.

Given the size of the site, the likely areas of disturbance and the position of sensitive noise receptors, it was unlikely that the construction phase noise levels would have a significant impact on surrounding residents or settlements. The impact of construction activities on the ambient noise level was therefore deemed to have a **low (-ve)** significance.

### Mitigation

Mitigation measures could include ensuring that all earthmoving vehicles and machinery is in good working operation, and not making excessive noise. The use of silencers on the plant, where applicable, could also be encouraged.

With mitigation measures in place, the impact would reduce to have a **very low (-ve)** significance.

### Impact on existing infrastructure

The proposed power station and associated activities could have implications for existing transport (vehicular traffic, railways as well as transport of water, wastewater, gas or liquid fuel), communication (communication masts or telephone lines) or electricity (power lines) infrastructure. The construction phase could result in intermittent or permanent interruptions in services provided by the above infrastructure. However the construction of the ash disposal facility is not expected to have an additional significant impact.

The study concluded that the construction phase impact, if unmitigated, has the potential to be of a **medium (-ve)** significance, given its long term duration and site specific extent.

### Mitigation

Mitigation measures included identifying all potentially affected infrastructure (above ground and buried) during the planning phase and ensuring that any relocation of services or interruptions in service can be planned and executed so as to cause minimal disruption.

With mitigation measures in place, the impact will likely to have a **low (-ve)** significance.

### Socio-economic impacts

The establishment of a coal-fired power station in the Witbank area was estimated to have a total capital cost of some R42 billion. However approximately 51% of this would be spent on imported equipment and hiring of foreign specialists. Therefore a total of approximately R20 539 million would be spent on South African Resources during the construction phase. Furthermore, the construction of infrastructure of this scale and nature requires a large construction force. It was estimated that the project would employ some

## **BASIC ASSESSMENT REPORT**

3 670 people, 20% of which would be highly skilled, 35% skilled and 45% unskilled labourers. As a spin-off of the construction project, it was estimated that a further 3 275 indirect jobs would be created. The majority of the materials supply and labour would be sourced from the Gauteng Province with the remainder sourced from the Mpumalanga Province. Unemployment ranges between 43.8 and 48% in Gauteng and Mpumalanga currently, with the South African average being 48.2%. The addition of some 7 000 job opportunities into the economy would provide a significant boost to the region, and would reduce unemployment by some 0.23% in Gauteng and Mpumalanga.

The establishment of the power station as a whole resulted in 54 people who were employed on the site (at existing facilities/operations) losing their jobs. These people represent semi-skilled or unskilled labour, and may find it challenging to secure new employment in the short-term.

The socio-economic impacts as a result of the construction phase activities were deemed to have **medium (+ve)** significance, due to the large number of jobs that would be created and due to the injection of capital into the provinces.

### **Mitigation**

It was proposed that Eskom assist the workers who lose their jobs on the chosen site to develop new skills, and furthermore, where possible employ those people during the construction and operation of the power station.

With mitigation measures in place, the significance of the construction phase impacts from a socio-economic perspective would still remain **medium (+ve)**, but the magnitude of the impact would increase slightly from low to low to medium.

### **Air Quality Impact Assessment**

The construction activities will result in the large scale clearing of vegetation which is likely to result in an increase in the amount of dust that is blown off the site. This could have a negative impact for farmers in the area, especially if their crops are sensitive to dust as well for recreational activities in the vicinity of the site.

Dust suppression techniques such as regular dampening of the construction or haul roads could be employed to control the amount of dust that is blown off site.

### **Litter/ waste pollution**

The effect of litter and waste pollution on the biophysical environment in the vicinity of the power station site and road corridors is likely to be relatively small, depending on the nature and the extent of the waste pollution..

### **Storage and utilisation of hazardous substances on site**

During the construction period the use and storage of hazardous substances such as shutter oil, curing compounds and diesel on site may have a negative impact on the surrounding environment, if the material is spilled.

Typical mitigation measures include storage of the material in a bunded area, with a volume of 150% of the storage container, refuelling of vehicles in designated areas that have a protective surface covering and the utilisation of drip trays for stationary plant equipment.

### **Security risks**

The construction activities will create an influx of job seekers to the area. However many will not find employment and may eventually turn to crime as means of income. Furthermore, after the construction phase, many people may not leave the area, and therefore unemployment may increase substantially immediately after the construction phase.

Eskom will develop and implement a comprehensive labour plan to manage and maximise employment opportunities to local communities, ensure preferential employment to local people, and minimise the influx of job seekers. Training and transfer skills to people employed on the site will empower the local communities and maximise their employment opportunities post construction phase.

### Light pollution

The construction site is likely to be well lit, especially when activities are scheduled to run for 24 hours a day. This additional light intrusion is likely to change the rural nature of the area, and have an impact for the residents on the surrounding farms. It is however unlikely to affect the surrounding residential areas, such as Phola or Voltago, as they are too far from the site to be affected by the light pollution.

It was concluded that all of the construction phase impacts could be managed through the implementation of a construction phase Environmental Management Plan.

## IMPACTS THAT MAY RESULT FROM THE OPERATION PHASE

### Impact of the Ash Disposal Facility on Groundwater

The potential impacts of the ash disposal system on groundwater include:

- Infiltration and overflow from “dirty” water dams contaminating groundwater;
- Artificial recharge of poor quality water from the ash dump; and
- Artificial recharge of poor quality water from runoff and seepage from the ash dump drainage channels and toe dam/s.

The groundwater study suggested that above ground storage of ash may result in impacts on groundwater quality, which may, in turn, impact on users. Initial ash disposal would have high seepage rates due to rapid transport of water and rain. As the ash disposal facility grows, calcium oxide and carbon dioxide would lead to the crystallisation of calcium carbonate and will form a layer of very low permeability in the top 0.5 m of the ash disposal facility, which would reduce leaching from the facility. It was anticipated that the groundwater contamination would become slow and would be localised. The slow migration of pollution was likely to result in attenuation and dilution of the pollution plume. Given that the impact would be felt over a long term, with a medium magnitude and local extent at the project site, an impact of **medium (-ve)** significance was anticipated.

### Mitigation Measures

The mitigation measures include:

- Establishment of the ash disposal facility on top of a suitably prepared surface to prevent leaching into the groundwater;
- Appropriate drainage around all waste sites;
- Siting dams on appropriate underlying geology or lining dams which contains polluted; and
- Establish boreholes to monitor groundwater down gradient of the ash disposal facility.

The impacts of the ash disposal system on groundwater will decrease from **medium (-ve)** to **low (-ve)** if the mitigation measures are applied.

### Impact of the Ash Disposal on the Wetlands

Wetlands impact assessment conducted for the ash disposal facility concluded that the ash dump would have the following impacts on the wetlands:

- Increased volumes of clean water discharged to the environment as a result of the interception and transfer of rainwater in areas of the rehabilitated portions of the ash dump that will enter clean water systems and be discharged via sedimentation traps. This impact in terms of the overall quantity perspective is considered to be positive and negative or neutral in terms of the environmental perspective at the wetland level.

- Increased velocities of clean water discharged from the sediment traps to the environment which results in increased risk of erosion if the discharges occur on side slopes.

The impact is considered to be **moderate to high (-ve)**.

### Impact of the Ash Disposal Facility on Terrestrial Ecology

Terrestrial ecological assessments concluded that the project site was largely transformed and degraded with a low carrying capacity (the ability of the vegetation to sustain life), without any large areas that specifically require conservation. The impact of establishing a coal-fired power station and its associated infrastructure (including the ash disposal facility) was therefore considered to be **low (-ve)** impact.

### Mitigation

It was suggested that search, rescue and relocation of protected species at the project site should be undertaken.

The impact of the project, including the ash dump facility is considered to be **low (-ve)** without mitigation, and **very low (-ve)** with mitigation

### Impact on aquatic fauna and flora

The proposed power station and associated infrastructure/ processes could have impacts on the existing aquatic fauna and flora and the above ground disposal of ash could have direct and indirect impacts on the aquatic environment. Indirect impacts associated with the ash disposal facility on the aquatic ecological environment include the impacts of dust blown from the dump increasing sediment levels of aquatic systems, resulting in loss of habitat due to smothering, increased turbidity, decreased photosynthesis and physiological stress on organisms. The impact of the ash disposal system in aquatic fauna and flora is considered to be **high (-ve)** without mitigation.

### Mitigation Measures

Potential mitigation measures identified included:

- Placing the ash disposal facility on top of a suitably prepared surface to prevent leaching into aquatic ecosystems;
- Ensuring appropriate drainage around the ash disposal facility;
- Ensuring that construction and operational phase activities steer clear of drainage lines and identified sensitive wetland sections; and
- Implementing dust suppression measures on the ash disposal facility.

The impact of the ash disposal system on aquatic fauna and flora is considered to be **high (-ve)** without mitigation and **very low (-ve)** with mitigation.

### Visual Impact of Ash disposal dump

The Visual Impact Assessment study found that the ash disposal facility would represent a visual intrusion. Whereas with other impacts e.g. groundwater or aquatic ecology, the type of ash disposal has its own significant impact separate from the power station infrastructure, for visual impacts the two were considered in conjunction. If anything, the ash disposal facility by itself would be more of a visual intrusion than an ash disposal facility in close relation to the imposing power station. Accordingly, ash disposal facility would have the same **medium to high (-ve)** significance as the rest of the proposed power station.

### Mitigation

- Progressively rehabilitating and revegetating the ash disposal facility.

The visual impact of the ash disposal system is considered to be **medium to high (-ve)** without mitigation and **medium (-ve)** with mitigation.

### Noise impact

It was predicted that ash removal (specifically the conveyor belt drive houses), the ash disposal facility spreading operations, and the additional vehicle traffic will generate noise. It was predicted that the noise associated with the condenser fans will range from 58 dBA within 1000 m of the site to 34 dBA within 6000 m of the site. The noise impact from the ash disposal facility is expected to be insignificant compared to the noise generated from the power station.

The impact on the noise climate as a result of the additional vehicular traffic generated by the power station was deemed to have **very low (-ve)** significance. The impact on the noise climate from other infrastructure such as the coal conveyor drive house and pipeline pump stations was deemed to have a **low (-ve)** significance.

### Mitigation

The location and orientation of the ancillary infrastructures such as the ash disposal facility will be optimised to reduce the noise impact on surrounding receptors. No mitigation measures were proposed for the noise that emanates from the increased vehicular traffic.

It was concluded that with mitigation the noise can be reduced from **low (-ve)** to **very low (-ve)**.

## IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

Like construction phase impacts, decommissioning impacts are inherently temporary in duration. The Department of Environmental Affairs will be appropriately notified and consulted prior to decommissioning taking place.

### 3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

#### Alternative A (preferred alternative)

All predicted negative impacts can be mitigated. Mitigation measures identified were included in the EMPr which is used to guide the construction of the ADDD and embankment culvert as well as the crossing of wetlands by the proposed pipeline and fence line.

From a social and economic point of view, the project carries both risks, and opportunities for local communities. Recommendations were provided in the specialist report, EIA Report and EMPr to ensure that the risks are adequately managed and the opportunities fully harnessed.

Positive socio-economic impacts will automatically result from the project (during construction and operation (e.g. stimulation of the local economy, job creation).

Negative socio-economic impacts may also result from the project. These will be related to nuisance inherent to construction activities (e.g. noise, dust) but also to risks which may materialise as a result of the project (e.g. safety, social disruption, in-migration and effect of temporary workers on social dynamics). The recommended mitigation measures should be adhered to in order to minimise them.

## **BASIC ASSESSMENT REPORT**

The ash disposal facility is expected to have an impact on wetlands, groundwater and aquatic flora and fauna. According to the wetland delineation studies, unless the ash dump is relocated the impacts associated with the loss of wetlands and their function was unavoidable. However relocating the ash dump to another site will impact on grasslands, which have higher biodiversity than wetlands (higher negative impact) Wetlands were classified into high integrity, medium integrity and low integrity wetlands and the ash disposal facility footprint will only impact on medium integrity wetlands. Site options were considered during EIA and the current position was found to be the most optimal. Eskom is currently investigating how to rehabilitate and protect the high integrity wetlands on the Kusile site



No-go alternative (compulsory)

N/A



**SECTION E. RECOMMENDATION OF PRACTITIONER**

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

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If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

The construction of the ash disposal facility, the pipeline, fencelines and culvert should be conducted under duty of care and must be in accordance with the recommendations that were included in the EMPr, EIA Report and specialist reports
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Is an EMPr attached?

YES	
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The EMPr must be attached as Appendix F.

**SECTION F: APPENDIXES**

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports ([including terms of reference](#))

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information- 2006 EIA Report

Appendix H Specialist Confirmations

Appendix I: Design Reports

Appendix J: Minutes of Eskom's meeting with DEA on 3 August 2012