

# PROPOSED MONITORED TRIAL EMBANKMENT – KRIEL POWER STATION

## DRAFT BASIC ASSESSMENT REPORT



July 2013



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**environmental affairs**

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

**File Reference Number:**

**Application Number:**

**Date Received:**

14/12/16/3/3/75

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.

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**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. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. 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.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. 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.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. 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.

12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. 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.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

## SECTION A: ACTIVITY INFORMATION

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

YES  
X

If YES, please complete the form entitled “Details of specialist and declaration of interest” for the specialist appointed and attach in Appendix I.

### 1. PROJECT DESCRIPTION

#### a) Describe the project associated with the listed activities applied for

##### Background and motivation

Kriel Power Station is a 3000 MW base load coal fired power station, consisting of 6 units, and is located in Mpumalanga province. Ash is generated as a by-product for electricity generation due to the combustion of coal from the power station. This ash is being disposed by means of ‘wet ashing’ (disposing of ash mixed with water) within the premises of the Kriel Power Station. An Environmental Impact Assessment (EIA), and associated Waste Management Licence (WML) processes, are being undertaken for feasible alternative new ash disposal site for the Kriel Power Station. The application for the new Ash Disposal Facility is separate from this application, but must be explained in order to describe the situation and the need for the Monitored Trial Embankment.

The Department of Water Affairs requires that any new Ash Disposal Facility be lined with an impermeable barrier system. As the proposed site for a new facility at Kriel Power Station is situated partly over virgin land and partly over previously rehabilitated spoil, the settlement profiles of the ground are unknown. One of the potential alternative sites is an old open-cast mined out area. This site is located immediately south and east of the existing Ash Disposal Facilities (Refer to Appendix A). The technical feasibility of this potential site is under investigation through detailed geotechnical studies, which will feed into the EIA process for the new ash disposal facility. Part of the technical investigative studies includes the establishment of Monitored Trial Embankment (MTE). This MTE is critical as it will support the accuracy of the calculation of settlement through geotechnical measures. The results from the construction of the MTE will additionally advise the need for the design of the groundwater protective barrier system.

The purpose of an MTE is to gather geotechnical calibration data for the construction of a new ash disposal facility. The MTE will be monitored for approximately 12 months and the data collected will allow for record of settlement of opencast backfill under an applied load, predict settlement and settlement profiles and in so doing provide vital information for the design of an impermeable barrier system. The information that could be gained from the proposed MTE is critical to enable the design of a new Ash Disposal Facility as well as providing research information to enable the use of degraded and mined out land to build similar facilities in future.

##### Project location

There are two alternative sites (referred to in this report as Sites A and B) which have been identified for the construction of the MTE; both within, and in close proximity to, Kriel Power Station, in Mpumalanga. Site A was selected for its proximity to the unrehabilitated spoil heaps and water sources, and Site B, which is to the south of Site A, was selected for its proximity to existing access roads as well as for having the greatest depth of rehabilitated spoil in the area. Due to past mining activity there are artificial wetlands in close proximity to the sites, and Site B falls within the buffer zone of a wetland. Both sites are shown on the map in Appendix A.

#### Technical information

The construction of the MTE will involve moving spoil from unrehabilitated windrows approximately 1.8 kilometers, to the site, and using it as material for the MTE. The site itself will be cleared and excavated as necessary. Instrumentation will be built into the structure for monitoring immediately following construction and for the subsequent 8 – 12 months until sufficient data has been recorded. Once the monitoring of the embankment is complete, water will be pumped into the MTE through a network of piping to force settlement collapse and monitor the response of the ground to saturation.

The design elements/criteria associated with the MTE are:

- Selection of the location of the MTE to allow settlement measurements to be recorded on virgin ground, across the high wall interface and in the opencast backfill where it is at its thickest (deepest mine level). A secondary criterion is to record settlement across the area where the pit had been backfilled with ash (Ramp 1 or the final void for Cut 1). Appendix A2 shows the general layout of the Pit 1 area. From a cost perspective the embankment location should minimise the cost of the earthworks (material source and transportation) and of injecting water into the spoils below its footprint (proximity to a source of water).
- Selection of the size (length) of the MTE to impose the maximum load increase over an area sufficient to ensure that the full thickness of the backfill experiences a load increase. The benefits of a longer MTE will be offset against the cost of construction.
- Survey to model the current topography of the MTE site to allow accurate estimates of earthworks quantities for site preparation and construction.
- Design of instrumentation to record:
  - the loading imposed by the MTE at foundation level,
  - settlement both at the base of the MTE and at various depths in the backfill, and
  - water levels in the backfill.
- Design of a water injection system to saturate the backfill above the current watertable as much as practicable.

The MTE is a temporary structure of an experimental nature. Construction is estimated to be completed in 3 to 4 months, after which the instrumentation will be regularly monitored for at least 4 months. Thereafter, the instrumentation will be monitored on a long term basis for up to 12 months, but will be completed by the time the earthworks for the new Ash Disposal Facility commence.

Legal framework

The proposed MTE triggers listed activities described in Government Notice Regulation 544. This means that a Basic Assessment process is required in terms of the National Environmental Management Act 107 of 1998 (NEMA) and 2010 EIA regulations. As the proposed MTE will be constructed from mining spoil, a Waste License in terms of the National Environmental Management: Waste Act 59 of 2008 (NEM:WA) is also required.

The re-use of waste

The use of spoil material to construct the proposed MTE is considered the reuse of waste. The spoil material has been classified as Hazardous (See Appendix D: Spoil Material Classification Report), due to manganese concentrations exceeding the Acceptable Risk Level of 0.30 mg/l. This means that the spoil may pose a risk to the aquatic environment. The risk is likely to be minimal due to three factors: First, the concentration of manganese in the spoil material is lower than the Alloway Crustal Abundance value of 950 mg/kg. This means that the amount of manganese in the spoil is lower than the average concentration of manganese in the earth's crust. Second, the mobility of manganese is controlled by the PH of the soils, with a pH of 3.6-3.8 increasing the probability of manganese leaching into the surrounding soils. The Water Research Commission (WRC) report of the catchment (report number 291/1/98, 1998) indicates that due to seepage from ash-disposal facilities, the groundwater in the catchment ranges from neutral to alkaline. This means that the leaching of metals from soil materials into the groundwater is highly unlikely. Third, the Nett Neutralization Potential (NPP) and low sulphide concentrations in the spoil make Acid Mine Drainage highly unlikely.

According to the Eskom Kriel Power Station's draft Integrated Water and Waste Management Plan (2012), water monitoring around the pit areas has found some level of contamination during water quality monitoring. These contaminants include sulphate, calcium, magnesium, fluoride and sodium as well as increased conductivity. Possible pollution sources in the catchment include opencast pits, ash disposal areas, coal stockyards, and power station facilities including sewage works, maturation ponds and waste facilities. The main pollutant in the area is sulfates (500 – 2000 mg/l) which seep into the groundwater from historical mining activities. Thus the likelihood of moving spoil material a short distance within the same catchment causing significant impacts on the water quality of the region is deemed to be minimal.

Water quality monitoring data gives an indication of the likely nature of the spoil material which can be used to formulate possible mitigation measures to neutralise the impacts arising from the hazardous nature of the spoil. The Spoil Material Classification Report recommends that the material be considered as general waste based on the low risks associated with the manganese concentrations in the

spoil, provided that proper Occupational Health and Safety measures are followed to minimize workers from inhaling any of the material. The classification does not find the spoil material to be carcinogenic, teratogenic or mutagenic.

Based on this low likelihood of hazardous contamination, on 17 May 2013 the Department of Environmental Affairs granted an approval to downgrade the application from a Scoping and Environmental Impact Assessment (S&EIR) to a Basic Assessment Report (see Appendix J).

**b) Provide a detailed description of the listed activities associated with the project as applied for**

Listed activity as described in GN R.544, 545 and 546 relevant notice:	Describe each listed activity as per the detailed project description (and notes per wording of the relevant Government Notice):
<p>GN 544, Activity 11 The construction of: (xi) infrastructure or structures covering 50 square metres or more</p> <p>Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction</p>	<p>The construction of a Monitored Trial Embankment (MTE) with a footprint of approximately 4 hectares (100x 400 m) within 32m of a watercourse.</p>
<p>GN 544, Activity 18 The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from</p> <p>(i) A watercourse</p> <p>But excluding where such infilling, depositing, dredging, excavation, removal or moving</p> <p>(i) Is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant authority; or</p> <p>(ii) Occurs behind the development setback line</p>	<p>Due to the proximity of the proposed MTE to an artificial wetland, some material may be deposited within the watercourse.</p>



<p>GN 544, Activity 23 The transformation of undeveloped, vacant or derelict land to –</p> <p>ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place for linear activities.</p>	<p>The transformation of vacant land to industrial use in order to construct a Monitored Trial Embankment (MTE). The footprint of the MTE is approximately 4ha.</p>
<p>Listed activity as described in GN R.718 <b>relevant notice:</b></p>	
<p>GNR718, 3 July 2009 Category B, Activity 4(2)</p> <p>The reuse or recycling of Hazardous Waste.</p>	<p>The use of mining spoil, which is classified as hazardous waste to construct a Monitored Trial Embankment</p>

## 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 as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity

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(NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative 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.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

**a) Site alternatives**

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
Site B (Southern site) is the preferred site for the proposed MTE. It is situated in the Kriel Power Station grounds, in close proximity to existing road networks. The site is situated approximately 160 metres south of the existing Kriel Ash Dams.	26°16'23.0"	29°12'06.0"
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
Site A (Northern site) is situated within the Kriel Power station grounds, approximately 300 metres to the east of the existing Kriel Ash Dams.	26°15'58.0"	29°12'31.0"
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
No-go alternative	N/A	N/A

In the case of linear activities: N/A

**Alternative:**

Alternative S1 (preferred)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

**Latitude (S):**

**Longitude (E):**


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~~Alternative S2 (if any)~~

- ~~• Starting point of the activity~~
- ~~• Middle/Additional point of the activity~~
- ~~• End point of the activity~~


~~Alternative S3 (if any)~~

- ~~• Starting point of the activity~~
- ~~• Middle/Additional point of the activity~~
- ~~• End point of the activity~~


~~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.~~

~~In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.~~

**b) Lay-out alternatives**

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)

**c) Technology alternatives**

<b>Alternative 1 (preferred alternative)</b>
<b>Alternative 2</b>
<b>Alternative 3</b>

**d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)**

<b>Alternative 1 (preferred alternative)</b>
<b>Alternative 2</b>

<b>Alternative 3</b>

**e) No-go alternative**

No construction of a Monitored Trial Embankment at Kriel Power Station. The requirements of the Department of Water Affairs to line disposal facilities in order to prevent leaching mean that no new Ash Disposal Facilities can be designed or constructed without appropriate impermeable barriers incorporated in the design. A new facility at Kriel Power Station cannot be designed without the research required from the MTE. If the MTE was not to be built, the capacity of Kriel Power Station's existing facilities would be reached within the next five years and the power station would cease to operate. This would lead to a decrease in power provided to South Africa as well as localised effects of loss of employment in the area as the power station would be closed. In addition, without the research on differential settling profiles of rehabilitated spoil and virgin ground, the potential for construction of disposal facilities on degraded and/or mined out areas is limited and so future benefits of the research in mining, power generation and industrial sectors would be lost.

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

**3. PHYSICAL SIZE OF THE ACTIVITY**

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

**Alternative:**

Alternative A1<sup>1</sup> (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

**Size of the activity:**

Footprint 400 m x 100 m, reducing to 200m x 10m at the top Height 20 m
Footprint 400 m x 100 m, reducing to 200m x 10m at the top Height 20 m
<b>m<sup>2</sup></b>

or, for linear activities:

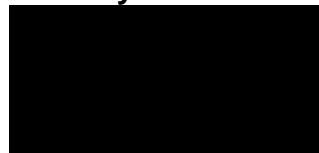
**Alternative:**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

**Length of the activity:**




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<sup>1</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

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

Alternative:	Size of the site/servitude:
Alternative A1 (preferred activity alternative)	72 000 m <sup>2</sup>
Alternative A2 (if any)	72 000 m <sup>2</sup>
Alternative A3 (if any)	m <sup>2</sup>

**4. SITE ACCESS**

Does ready access to the site exist?	YES X <input type="checkbox"/>
If NO, what is the distance over which a new access road will be built	<input type="text"/> m

Describe the type of access road planned:

The sites will be accessed through the use of existing access roads.
--

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.

**5. 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 accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- 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).

## **6. LAYOUT/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:

- the property boundaries and numbers of all the properties within 50metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

## **7. SENSITIVITY MAP**

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- 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 infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

## **8. 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 report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

## **9. FACILITY ILLUSTRATION**

A detailed illustration of the activity must be provided at a scale of at least 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.

## 10. ACTIVITY MOTIVATION

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

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	YESX	
The land has traditionally been used for spoiling from the mine, and the activity requires placing of spoil over existing rehabilitated spoil heaps.		
<b>2. Will the activity be in line with the following?</b>		
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	YESX	
Mpumalanga Provincial Government has zoned the area for mining. As the MTE will be built from mining spoil, there will be no appreciable change to land use that would affect municipal spatial planning. It is also a short-term project and therefore will not affect long-term planning in the region. It must also be noted that the activity involves moving mining spoil from one area in the power station grounds to another area, approximately 1.8 km away from the original spoil windrows. The activity for the area will not change as a result of moving the spoil.		
<b>(b) Urban edge / Edge of Built environment for the area</b>	YESX	
The proposed MTE will not affect the Urban Edge as it will not result in urban development or even a significant change in land use.		
<b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b>	YESX	
According to the Nkangala District Municipality IDP and SDF, the area in which the MTE is proposed is zoned for mining and industrial use. As the activity involves building an embankment from mining spoil, this will not change the land use of the area, and there are no recorded plans to change the zoning of the area in the near future.		
<b>(d) Approved Structure Plan of the Municipality</b>	YESX	
As stated in (c) above.		

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<p><b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b></p>	<p>YES X</p>	
<p>The proposed MTE is in line with existing planning documents for the area.</p>		
<p><b>(f) Any other Plans (e.g. Guide Plan)</b></p>	<p>YES X</p>	
<p>No other plans were found which would be affected by the proposed MTE.</p>		
<p><b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b></p>	<p>YES X</p>	
<p>The MTE will not appreciably change the land use in the proposed location. It is also not a permanent structure and therefore would not need to be considered in future planning initiatives in the area.</p>		
<p><b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b></p>	<p>YES X</p>	
<p>The area is within the existing Kriel Power Station complex and as such is not earmarked for community development. The researched gained from the proposed MTE will enable the construction of new Ash Disposal Facilities which will assist power generation by expanding the lifespan of power stations, and therefore promote community development through power generation. The local community will benefit from the continued operation of the power station which is central to the local economy. The national community will also benefit from the project since Power generation is a national priority and so the continued functioning of the Kriel Power Station is necessary for the whole of South Africa.</p>		
<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	<p>YES X</p>	
<p>There will be no net loss (and therefore requirement) of water as it will be returned to the returns dam following its use. Power for lighting will be required, but this will be provided directly from Kriel Power Station. No additional services will be required from the Municipality.</p>		



<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	<p>N/AX</p>	
<p>This proposed project will not affect the infrastructure planning of the municipality as it is a short-term project and the land is earmarked for future Ash Disposal Facilities and therefore cannot be used in municipal planning initiatives.</p>		
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YESX</p>	
<p>The proposed MTE will provide calibration data that can be used to design barrier systems in disposal facilities. This will enable the planning and construction of Ash Disposal Facilities in future that will allow for the expansion of the capacity of electricity generation in South Africa. Power Generation is a national priority in South Africa and enables economic growth and development in other sectors.</p>		
<p><b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b></p>	<p>YESX</p>	
<p>The site is situated within the Kriel Power Station complex. It is on land that is already relatively degraded from past mining activity and so the potential impacts will be minimal. The site is close to unrehabilitated spoil windrows to use the spoil as building materials. The site is also situated on a mixture of rehabilitated spoil and virgin soil, which means that the range of settlement profile date from the MTE will be broad and therefore more valuable than that generated from an MTE build on only one type of ground.</p>		
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	<p>YESX</p>	
<p>The land is already degraded from mining and ash disposal activities in the region. The use of degraded land for research purposes means that other, pristine land is not required for the project. Additionally, the land may become part of the new Ash Disposal Facility and so the land is only available temporarily, which makes alternative projects on the site improbable.</p>		

<p><b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b></p>	<p>YESX</p>	
<p>The project will generate the data required to design a barrier system for the future project of constructing a new Ash Disposal Facility at the site. The design of a barrier system is a direct requirement for the authorisation for construction of a new Ash Disposal Facility and therefore the information that would be gained from the proposed MTE is critical in the continued operation of the station. This will allow for the safe disposal of waste in future as the information generated can be used throughout the industry, as well as enabling the continued functioning of Kriel Power Station in the future. The site is currently degraded, with watercourses containing little to no biota, and a large proportion of invasive plants established. The spoil material proposed as the building material for the MTE originated from the same source as the rehabilitated spoil on which the site is situated. As such, the impacts of the proposed MTE are likely to be minimal and therefore the benefits of the project definitely outweigh any negative outcomes of the proposed MTE project.</p>		
<p><b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b></p>		<p>NOX</p>
<p>The project is unique in that it involves a temporary construction for research purposes. If the project produces satisfactory data is it highly unlikely that a similar application will be presented to the municipality in the future.</p>		
<p><b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b></p>		<p>NOX</p>
<p>The location of the proposed MTE is entirely owned by the applicant and no access is given to the general public, therefore no public rights are affected by the application.</p>		
<p><b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b></p>		<p>NOX</p>
<p>The project will not substantively change land-use of the area, and will not lead to further development or encroachment on the urban edge.</p>		
<p><b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b></p>	<p>YESX</p>	
<p>Yes, the project is in line with SIP 9: to enable the increase in energy generating capacity in South Africa.</p>		

<p><b>15.What will the benefits be to society in general and to the local communities?</b></p>	<p>Please explain</p>
<p>The benefits of the proposed MTE project are twofold: first, it will provide calibration data for small-scale projects requiring barrier/liner systems that will allow for the design of barrier systems that will not crack from settlement pressures and forces. This knowledge will have implications for the mining sector, energy sector and any facility that is planning to construct tailings dams, Ash Disposal Facilities or similar structures in the future. This also means that in future degraded land from mining and similar activities can be used in the future for the construction of disposal facilities as the settlement profiles of different soil types will be better understood. This will decrease the current reliance on greenfields projects to build disposal sites and allow for more sustainable development and decreased environmental impact across multiple sectors that require lined disposal sites.</p> <p>The second benefit of the proposed MTE is that the project will provide information critical to the design of the lining system for a new Ash Disposal Facility. This will enable the continued operation of the power station and provide direct economic benefits to the local community as well as enabling development and activity in sectors that require power.</p>	
<p><b>16.Any other need and desirability considerations related to the proposed activity?</b></p>	<p>Please explain</p>
<p>The information generated from the monitoring of the MTE is essential to enable the design of an Ash Disposal Facility at Kriel Power Station (separate from this application, but contingent on this application). The new facility is essential for the continued operation of the power station as Ash Disposal Facilities are soon to reach capacity. The construction of a new Ash Disposal Facility is a multi-billion Rand project that will not be possible without the prior construction and monitoring of the proposed MTE. Without the new Ash Disposal Facility the power station will not be able to operate.</p>	
<p><b>17.How does the project fit into the National Development Plan for 2030?</b></p>	<p>Please explain</p>
<p>The project enables Kriel Power Station to increase in capacity and lifespan through enabling the design and construction of an Ash Disposal Facility. This means that the output of the power station will continue uninterrupted and thus development will not be constrained through inconsistent or uncertain power production.</p>	

**18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**

This project considers socio-economic factors (heritage, and the value of the project regarding enabling development) along with specialist studies investigating potential effects on terrestrial and aquatic environments. As an independent Environmental Assessment Practitioner, the task is to balance the impacts and suggest appropriate mitigation measures with the aim of minimising negative impact and enhancing benefits while promoting sustainable development. The use of an already degraded area for the proposed MTE as well as reusing spoil at the site are both examples of Integrated Environmental Management principles in reducing the potential impacts of the project.

**19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.**

The principles of NEMA have been taken into account. NEMA makes it clear that the physical, psychological, developmental, cultural and social needs of people are of paramount importance and must be served through careful implementation of sustainable development practices and principles. This is accomplished here through the consideration of the aspects and benefits of the MTE in terms of social factors as well as sustainable development. The use of specialists to identify possible impacts and mitigation measures allows for the proposed MTE to go forward in a manner that will have minimal impact on the environment.

**11. APPLICABLE LEGISLATION, POLICIES AND 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:

<b>Title of legislation, policy or guideline</b>	<b>Applicability to the project</b>	<b>Administering authority</b>	<b>Date</b>
Constitution of South Africa( Act No. 108 of 1996)	Management of ground water pollution	National Government	1996
National Environmental Management Act (Act No. 107 of 1998) as amended.	Items listed in the regulations of NEMA are triggered by the proposed MTE project.	Department of Environmental Affairs (DEA)	1998
National Environmental Management: Waste Act ( Act 59 of 2008)	The material used in the construction of the MTE will be unrehabilitated mining spoil, which is classified as low-impact hazardous waste.	DEA	2008
National Heritage Resources Act ( No 25 of 1999)	Due to the size of the proposed MTE, a Heritage Impact Specialist performed a specialist study to	SAHRA	1999

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	ensure that no areas or artefacts of cultural or heritage significance would be damaged by the proposed project.		
National Environmental Management : Biodiversity Act( No 10 of 2004)	A terrestrial ecology specialist was sent to the proposed alternative sites to ensure that the proposed MTE would not have a significant impact on biodiversity in the region.	Department of Environmental Affairs	2004
National Water Act ( Act No 36 of 1998)	Five different section 21 water uses have been triggered by the proposed MTE project. An integrated Water Use License Application has been submitted to the Department of Water Affairs and is included in the appendices of this document.	Department of Water Affairs	1998
National Environmental Management : Air Quality ( No 39 of 2004)	Dust associated with construction phase		2004

**12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT**

**a) Solid waste management**

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

	NO X
--	---------

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

--

The project will not produce solid waste but it will use approximately 350 000 m<sup>3</sup> of spoils, estimated to weigh some 665Mt at a bulk density of 1892kg/ m<sup>3</sup>

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

Please note that the activity makes use of existing waste, but will not produce any further during its construction and operation phases

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

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[Empty box]

Will the activity produce solid waste during its operational phase?

<input type="checkbox"/>	NO
<input checked="" type="checkbox"/>	X
	m <sup>3</sup>

~~If YES, what estimated quantity will be produced per month?~~

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

[Empty box]

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

No generation of solid waste is anticipated. Following the completion of the project the spoil material will either be returned to the original stockpile windrows or incorporated into the construction of a new Ash Dam facility at the same site, depending on the results of Environmental Impact Studies in the application for authorisation of the new Ash Disposal Facility.

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

N/A no generation of waste by the project is anticipated.

*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 NEM:WA?

YES	<input type="checkbox"/>
X	<input checked="" type="checkbox"/>

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

A request was made to DEA for a downgrade from a Scoping and Environmental Impact assessment process to a Basic Assessment process based on the degraded quality of the receiving environment, the nature of the waste classification and the urgency of the project. The waste classification study found the spoil material to be Hazardous based on increased Manganese levels. The recommendation from the specialist was that the potential contamination and impacts of the spoil are minimal for three reasons: First, the concentration of manganese in the spoil material is lower than the Alloway Crustal Abundance value of 950 mg/kg. This means that the amount of manganese in the spoil is lower than the average concentration of manganese in the earth's crust. Second, the mobility of manganese is controlled by the PH of the soils, with a pH of 3.6-3.8 increasing the probability of manganese leaching into the surrounding soils. The WRC report of the catchment (report number 291/1/98, 1998) indicates that due to seepage from ash-disposal facilities, the groundwater in the catchment ranges from neutral to alkaline. This means that the leaching of metals from soil materials into the groundwater is highly unlikely. Third, the Nett Neutralization Potential (NPP) and low sulphide concentrations in the spoil make Acid Mine Drainage highly unlikely.

DEA granted an approval to downgrade from a Scoping and EIA process to a Basic Assessment process. The letter of acceptance regarding the downgrade is attached as Appendix J.

Is the activity that is being applied for a solid waste handling or treatment facility? 
 NO  
 X

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. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

**b) Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? 
 NO  
 X

If YES, what estimated quantity will be produced per month? m<sup>3</sup>

Will the activity produce any effluent that will be treated and/or disposed of on site? 
 NO  
 X

*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.*

Will the activity produce effluent that will be treated and/or disposed of at another facility? 
 NO  
 X

If YES, provide the particulars of the facility:

<b>Facility name:</b>			
<b>Contact person:</b>			
<b>Postal address:</b>			
<b>Postal code:</b>			
<b>Telephone:</b>		<b>Cell:</b>	
<b>E-mail:</b>		<b>Fax:</b>	

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

Waste water will be disposed of into the return dam facilities and integrated into the water system already in place at the Kriel Power Station.

**c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

	NO X
	NO X

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

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

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

Some dust may be generated during the construction phase, but this can be mitigated to negligible levels. Mitigation measures are included in the EMP, attached as Appendix G.

**d) Waste permit**

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

	NO X
--	---------

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

The activity will not produce any waste, but it does make use of existing waste. Please see Appendix C4: Waste Classification Report for details.

**e) Generation of noise**

Will the activity generate noise?

YES X	
	NO X

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.

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

Noise will only be generated during the construction phase. As the proposed MTE site is within the Power Station Complex it is unlikely that the project will create enough noise to become a nuisance or a danger, as existing procedures in the area generate significant noise.

**13. WATER USE**

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

	River, stream, dam or lake X	
--	---------------------------------	--



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:

Not known at present	
YES X	

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

Proof of submission of an Integrated Water Use License Application will be provided in the Final Submission of the BAR.

#### 14. ENERGY EFFICIENCY

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

None

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

No alternative energy sources are available for this activity.

## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

**Important notes:**

- 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 B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. )  
A):

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

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

YES	
X	

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

**Property description/physical address:**

<b>Province</b>	Mpumalanga
<b>District Municipality</b>	Nkangala District Municipality
<b>Local Municipality</b>	Emalahleni Local Municipality
<b>Ward Number(s)</b>	27
<b>Farm name and number</b>	Alternative Site A: Farm Onverwacht, portions 11 and 23 Alternative Site B: Farm Onverwacht, portions 9 and 23; Kriel Power Station (remaining extent); Farm Driefontein portions 3 and 15
<b>Portion number</b>	Indicated above
<b>SG Code</b>	Site A: TOIS00000000007000023 TOIS00000000007000011  Site B: TOIS00000000006500000 TOIS00000000006900003 TOIS00000000006900015 TOIS00000000007000009 TOIS00000000007000023

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

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**Current land-use zoning as per local municipality IDP/records:**

Mining, quarrying and industrial.

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.

Is a change of land-use or a consent use application required?

	NO
	X

**1. GRADIENT OF THE SITE**

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	Steeper than 1:5
------	------------------	------------------	------------------	-------------------	------------------	------------------

**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
------	------------------	------------------	------------------	-------------------	------------------	------------------

**Alternative S3 (if any): N/A**

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
------	------------------	------------------	------------------	-------------------	------------------	------------------

**2. LOCATION IN LANDSCAPE**

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

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

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

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

	<b>Alternative S1 (Site B):</b>	<b>Alternative S2 (Site A):</b>	<b>Alternative S3 (if any):</b>
Shallow water table (less than 1.5m deep)	YES X	YES X	YES    NO
Dolomite, sinkhole or doline areas	NO X	NO X	YES    NO

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Seasonally wet soils (often close to water bodies)	YES X		YES X		YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO X		NO X	YES	NO
Dispersive soils (soils that dissolve in water)		NO X		NO X	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO X		NO X	YES	NO
Any other unstable soil or geological feature		NO X		NO X	YES	NO
An area sensitive to erosion	YES X			NO X	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).

<del>Natural veld in good condition<sup>E</sup></del>	Natural veld with scattered aliens X <sup>E</sup>	<del>Natural veld with heavy alien infestation<sup>E</sup></del>	<del>Veld dominated by alien species<sup>E</sup></del>	Gardens
<del>Sport field</del>	<del>Cultivated land</del>	<del>Paved surface</del>	<del>Building or other structure</del>	<del>Bare soil</del>

If any of the boxes marked with an “<sup>E</sup>” 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. SURFACE WATER**

Indicate the surface water present on and or adjacent to the site and alternative sites?

Site B (preferred site)

Perennial River		NO X	
Non-Perennial River		NO X	

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Permanent Wetland		NO X	
Seasonal Wetland		NO X	
Artificial Wetland	YES X		
Estuarine / Lagoonal wetland		NO X	

Site A (alternative site)

Perennial River		NO X	
Non-Perennial River		NO X	
Permanent Wetland		NO X	
Seasonal Wetland		NO X	
Artificial Wetland		NO X	
Estuarine / Lagoonal wetland		NO X	

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Site B (the preferred site) is located within the buffer zone of an artificial wetland. Historically ash was disposed of in mined out ramp areas. Water has percolated through the ash layer and resulted in artificial wetlands on the site. Shapefiles from DWA as well as recent maps do not indicate a river within the area of site B. There are, however, canals indicated, which means that the land use activities (whether present or historical) have altered the drainage patterns of the area to accommodate the stormwater management pertaining to the infrastructure development. Stormwater canals do not constitute an aquatic habitat and therefore are not usually surveyed.

Site A (the alternative site) is located near a small returns dam known as the Duck Pond. The Duck pond collects water that drains from the ash dams in the vicinity of the site through a network of drains and canals. The aquatic specialist found no risk of encroachment on water bodies if site A is selected as the proposed footprint is far enough away from surrounding water bodies to prevent triggering of listed activities.

## 6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that 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:

Natural area	<b>Dam or reservoir</b>	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	Agriculture
Retail commercial	Old age home	<b>River, stream or wetland</b>

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&warehousing		
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	Mountain, koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
<b>Power station</b>	Major road (4 lanes or more) <sup>N</sup>	Historical building
Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard
<b>Spoil heap or slimes dam<sup>A</sup></b>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	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?

N/A

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

N/A

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

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)		NO X
Core area of a protected area?		NO X
Buffer area of a protected area?		NO X
Planned expansion area of an existing protected area?		NO X
Existing offset area associated with a previous Environmental Authorisation?		NO X
Buffer area of the SKA?		NO X

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

**7. CULTURAL/HISTORICAL FEATURES**

Are there any signs of culturally or historically significant elements,                      NO X

as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

N/A

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

The heritage specialist study is attached in Appendix C. Briefly, no sites or items of heritage significance were found at either the preferred or the alternative site. Given the nature of the area as mined out and rehabilitated spoil heaps it is extremely unlikely that the proposed project would have any impact on heritage.

Will any building or structure older than 60 years be affected in any way?

NO X

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

NO X

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

## 8. SOCIO-ECONOMIC CHARACTER

### a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

According to Census 2011 data, 46% of the adult population of Emalahleni Local Municipality is unemployed. The table below shows employment by skill level.

Employment by skill level, local municipality 2011 (v1 31Aug12)		
Concept	2011	%
<b>Formal employment by skill</b>	<b>105501</b>	<b>79%</b>
Highly skilled	16188	15%
Skilled	41195	39%
Semi- and unskilled	48118	46%
<b>Informal employment</b>	<b>27206</b>	<b>21%</b>
<b>Total</b>	<b>132707</b>	<b>100%</b>

Economic profile of local municipality:

Gross Value Added (GVA) is defined as the total value of all the goods produced in a specific area during a specific period.

GVA allows for the determining the overall welfare of the population. While it is not a comprehensive measure and provides no indication of the distribution of welfare, it is still important an important indicator.

The GVA was taken from Quantec Research Easy Data. Quantec Research defines the major sectors into Primary Sector, which is extractive, Secondary Sector, made up of manufacturing and the Tertiary Sector, which comprises of services.

Primary Sector:

- Agriculture, forestry and fishing; and
- Mining and Quarrying

Secondary Sector:

- Manufacturing: This includes food, beverages and tobacco; textiles, clothing and leather goods; wood, paper, publishing and printing; petroleum products, chemicals, rubber and plastic; other non-metal mineral products; metals, metal products, machinery and equipment; electrical machinery and apparatus; radio, TV, instruments, watches and clocks; transport equipment; and furniture and other manufacturing.
- Electricity, gas and water; and
- Construction

Tertiary Sector:

- Wholesale and retail trade, catering and accommodation: This sector represents the tourism sector through catering and accommodation and the sale of goods through trade.
- Transport, storage and communication;
- Finance, insurance, real estate and business services;
- Community, social and personal services; and
- General Government

The Table below shows the 2011 GVA for **Emalaheni**LM in percentages. The figures below are based on 2005 constant prices.

Industry	2011	%
Agriculture, forestry and fishing	201	1%



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Mining and quarrying	8025	37%
Manufacturing	3882	18%
Electricity, gas and water	1771	8%
Construction	410	2%
Wholesale and retail trade, catering and accommodation	1741	8%
Transport, storage and communication	1788	8%
Finance, insurance, real estate and business services	1541	7%
Community, social and personal services	813	4%
General government	1399	6%
<b>Total</b>	<b>21571</b>	<b>100%</b>

**Level of education:**

According to Census 2011 data (Statistics South Africa, 2011), 18.6% of the population of Emalahleni LM over the age of 20 have received no schooling. At present 78 % of children aged 5 – 24 are receiving some level of education. The table below shows the population of the local municipality by gender and education level.

Census 2011 - Population by Local Municipality, Gender and Level of Education			
Education level	Total	1: Male	2: Female
1: No schooling	5%	4%	5%
2: Some primary	19%	19%	19%
3: Complete primary	4%	4%	4%
4: Some secondary	30%	30%	30%
5: Grade 12 / Std 10 / Form 5	22%	21%	22%
6: Higher	9%	10%	9%
7: Other	0%	0%	0%
9: Unspecified	0%	0%	0%
0: Not applicable (children younger than five years, institutional population and transients)	11%	12%	11%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?

N/A – research value

What is the expected yearly income that will be generated by or as a result of the activity?

N/A

Will the activity contribute to service infrastructure?

YES

Is the activity a public amenity?

NO

How many new employment opportunities will be created in the development and construction phase of the activity/ies?	None
What is the expected value of the employment opportunities during the development and construction phase?	None
What percentage of this will accrue to previously disadvantaged individuals?	N/A
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A
What is the expected current value of the employment opportunities during the first 10 years?	N/A
What percentage of this will accrue to previously disadvantaged individuals?	N/A

## 9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

- a) **Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)X	No Natural Area Remaining (NNR)X	

- b) **Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	%	

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<b>Near Natural</b> (includes areas with low to moderate level of alien invasive plants)	%	
<b>Degraded</b> (includes areas heavily invaded by alien plants)	100 %	The area is largely rehabilitated spoil and therefore little original natural habitat remains.
<b>Transformed</b> (includes cultivation, dams, urban, plantation, roads, etc)	%	

**c) Complete the table to indicate:**

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems					
<b>Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</b>	<del>Critical</del>	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	Estuary		Coastline		
	<del>Endangered</del>						
	<del>Vulnerable</del>						
	<b>Least Threatened</b>	<b>YES</b>	<del>NO</del>	<del>UNSURE</del>	<del>YES</del>	<b>NO</b>	<del>YES</del>

Site A falls within the ‘No Natural Habitat Remaining’ category, while site B (the preferred site) falls within both the ‘No Natural Habitat Remaining’ and ‘Least Threatened’ categories.

**d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)**

According to the Ecology Specialist Study (Appendix C), the study area falls within the grassland biome and has been categorised as Eastern Highveld Grassland vegetation unit. Eastern Highveld Grassland Threatened Terrestrial Ecosystems were recorded on both of the alternative sites. Site A falls within the “*No Natural Habitat Remaining*” category while Site B falls within the “*Least Concern*” and “*No Natural Habitat Remaining*” categories. Due to mining activities, the two proposed

sites are dominated by alien invasive plant species such as Pompom weed (*Campulocliniummacrocephalum*), Scotch Thistle (*Cirsiumvulgare*) and *Cortaderiaselloana*.. No Red Data plant species were recorded.

Three mammal species were recorded on site, namely Porcupine *Hystrixafricaeaustralis* (Site A), Common Duiker *Sylvicapragrimmia* and Waterbuck *Kobusellipsiprymnus* (Site B). However, the observed species are widespread and not considered to be of conservation concern. Good habitat cover is present near the proposed sites, especially along the furrow and near the wetlands. Wetlands occur near site A and appropriate buffer zones around the wetland areas must be implemented. Mammals are sensitive to disturbances and as such they were not expected to occur on site. No large game or predators, or any signs of them, were observed in the study area during field survey. The majority of larger mammal species are likely to have moved away from the area as a result of habitat alteration and degradation. The proposed embankment activities are not thought to have any significant impacts on the overall conservation of mammalian diversity within the area. Bird species recorded during the field survey are common and widespread. No reptile species were recorded on site.

## SECTION C: PUBLIC PARTICIPATION

## 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Witbank News Ridge Times	
<b>Date published</b>	17/07/2013, 19/07/2013 respectively	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	26.248217°	29.210771°
	26.251043°	29.179250°
	26.246105°	29.182977°
<b>Date placed</b>	17/07/2013	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

## 2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

All of the land within 100 m of either site alternative is owned and managed by the applicant. Access to the sites is restricted and there are no affected landowners or residents at either site.

As the proposed MTE is to be constructed of mining spoil, the Environmental Manager of Kriel Colliery will be notified of the application. No other I&APs have been identified at present. Advertisements and site notices were used to alert the public to the proposed project. Two public meetings were held on 25 July, 2013 at Kriel Methodist Church. No members of the public attended with the exception of a student of environmental science who was interested in the public participation process. Should further comments require a third public meeting it will be arranged accordingly.

Copies of the draft reports were made available to the public at the Kriel Power Station Main Gate Reception, the Kriel Public Library as well as on the Eskom website [http://www.eskom.co.za/eia/Kriel Monitored Trial Embankment](http://www.eskom.co.za/eia/Kriel%20Monitored%20Trial%20Embankment) and the Nema Consulting website (<http://www.nemai.co.za>).

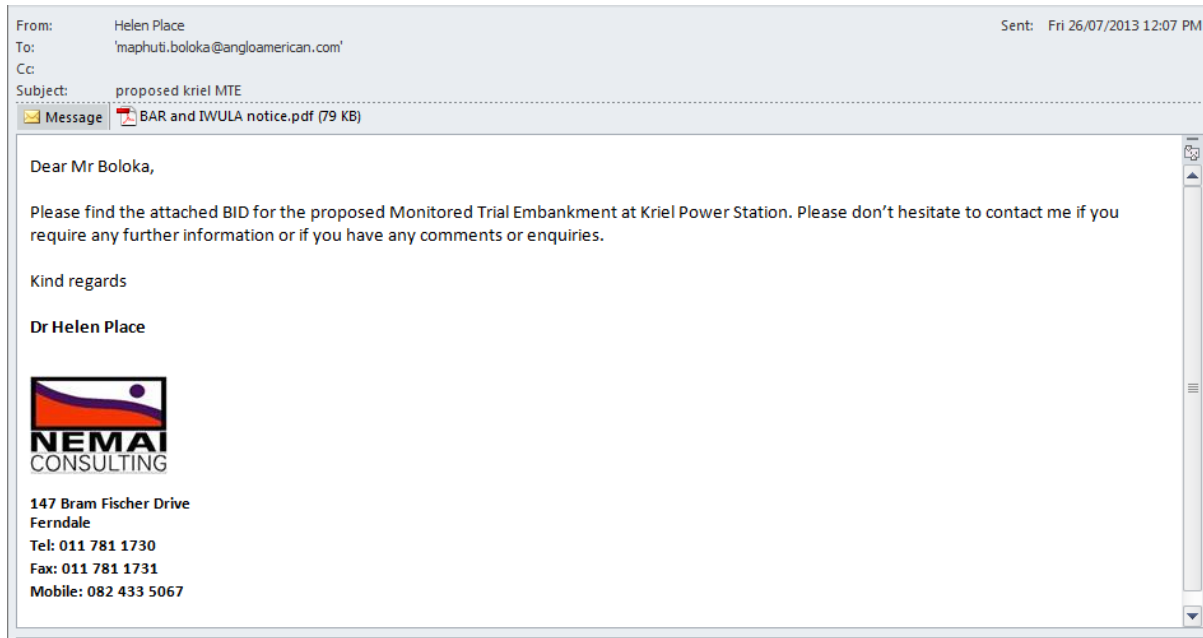
Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

<b>Title, Name and Surname</b>	<b>Affiliation/ stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
Environmental Manager, Maphuti Baloka	Kriel Colliery	maphuti.boloka@angloamerican.com

## DRAFT BASIC ASSESSMENT REPORT

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.



### 3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Two members of the public contacted Nemai Consulting telephonically after seeing the advertisement in the Witbank News. They enquired as to whether the project would provide them with any job opportunities. The second person declined to provide his personal details except for his cellphone number.	Nemai Consulting is involved in the Environmental Authorisation Process and not job recruitment however we will note your comment in the Comments and Response Report and add your details to the I&AP database so that you will be informed about the process as it goes forward.
<i>No other comments received at this stage</i>	

### 4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR 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 the Final BAR as Appendix E3.

## DRAFT BASIC ASSESSMENT REPORT

The final comments and response report will be provided in the appendices of the final BAR.

### 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Environmental Affairs	Milicent Solomons – Director: Integrated Environmental Authorizations	012 395 1582	012 320 7539	<a href="mailto:msolomons@environment.gov.za">msolomons@environment.gov.za</a>	Private Bag x447, Pretoria, 0001
Department of Environmental Affairs - Waste Unit	Lucas Mahlangu	012 310 3536		<a href="mailto:Lmahlangu@environment.gov.za">Lmahlangu@environment.gov.za</a>	Private Bag X447, Pretoria, 0001
Mpumalanga Department of Water Affairs	Mr F Mntambo – Chief Director Mpumalanga	013 7310 759	013 7525 7525	<a href="mailto:MntamboF@dwa.gov.za">MntamboF@dwa.gov.za/</a> <a href="mailto:phokyk@dwa.gov.za">phokyk@dwa.gov.za</a>	Private Bag X11259, Nelspruit, 1200
Nkangala District Municipality	E.K. Tshabalala – Director: Social Services	013 249 2006		<a href="mailto:nkosinm@nkangaladm.org.za">nkosinm@nkangaladm.org.za</a>	P. O Box 437, Middelburg, 1050
Emalahleni Local Municipality	E. J. Nkabinde	013 690 6350	086 698 0791	<a href="mailto:nkabindeej@emalahleni.gov.za">nkabindeej@emalahleni.gov.za</a>	P. O. Box 3, Witbank 1035
South African Heritage Resources Agency (SAHRA)	Phillip Hine – SAHRA Mpumalanga	021 462 4502 083 289 6888	021 462 4509	<a href="mailto:phine@sahra.org.za">phine@sahra.org.za</a>	P.O. Box 4637, Cape Town 8000
Ward Councillor, Ward 27	Zingisa Cameron Mbuku	013 690 6208/6356 076 652 1282	013 690 6479		
Department of Labour		(013) 655 8700	(013) 690 2622		Private Bag X7263 Witbank 1035
Department of Health	JJ Mahlangu – Head of Department	013 766 3298	013 766 3463	<a href="mailto:pauleckm@social.mpu.gov.za">pauleckm@social.mpu.gov.za</a>	Private Bag X11285, NELSPRUIT, 1200

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

### 6. CONSULTATION WITH OTHER STAKEHOLDERS

## DRAFT BASIC ASSESSMENT REPORT

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation 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. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

Every person who has made any contact with the project team regarding the project has been added to the I&AP database, which is shown below.

<b>Title, Name and Surname</b>	<b>Company</b>	<b>Contact details (tel number or e-mail address)</b>
Given Silinda	Private	<a href="mailto:Jmsilinda@gmail.com">Jmsilinda@gmail.com</a> 0798466945
Declined to provide name	Private	071 227 8641
K. C. Seroka	UNISA	<a href="mailto:custers@vanchem.co.za">custers@vanchem.co.za</a> 082 512 7715
Modikoa Molepo	Department of Home Affairs	<a href="mailto:Modikoa.Molepo@dha.gov.za">Modikoa.Molepo@dha.gov.za</a>

A list of registered I&APs must be included as Appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

Pre-application consultation meetings were held with the Department of Environmental Affairs on 22 January 2013 and the Department of Water Affairs on 14 January 2013. The purpose of the meetings was to confirm their respective requirements during the Basic Assessment Process, particularly regarding the downgrade process. Minutes of the meetings are attached as Appendix E6. Two public meetings were held on 25 July 2013 to provide any I&APs with an opportunity to meet the project team, learn about the proposed MTE project and raise any issues or concerns that they may have regarding the meeting. As no I&APs attended these meetings, no minutes have been compiled, but the attendance register is attached as Appendix E7 and the presentation compiled for the meetings is attached as Appendix E8.



## 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. 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**

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts 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. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A (2) of this report.

Site B (Preferred Alternative) or Site A

As there are no appreciable differences in the environmental impacts of either alternative, the impacts are listed together here. The only difference between the alternatives is that the technical aspects of accessing the sites and the quality of information gained through research depending on the depth of spoil at each site. . According to the aquatic specialist, although site B does contain a wetland and therefore impacts could be greater, as long as mitigation measures are followed there should be no significant impact on the artificial wetland. The mitigation measures will be the same for both sites (see Appendix G, EMP for detailed mitigation measures).

The construction of the proposed MTE would be a relatively short-term activity, with construction taking place over the course of approximately four months. Construction will take place in an access-controlled area within the grounds of Kriel Power Station. Existing access roads will be used to approach the site. As the proposed project is of a short duration and is contained entirely within the existing power station premises, no visual, noise or pollution impacts would occur to affect the local population. While mitigation measures would be used at all stages to minimise the impacts of the project, key potential aspects and impacts are outlined below for each phase of pre-construction, construction, operation and decommissioning. The increase in traffic on dirt roads for access to the site will generate dust, as will the transport of spoil to the site, and the construction of the MTE from uncovered spoil. These impacts are likely to be minimal as no new material is being brought to the site and the roads are currently in use. The mitigation measures for the impacts on air quality are outlined in Appendix F (detailed Impact Assessment). Briefly, all road surfaces should be sprayed to reduce the generation of dust by plant and vehicles along access roads.

Spraying should be of sufficient quantity to bind dust particles, but not enough to generate runoff. Loads of spoil must be covered or wetted during transportation to prevent an increase in dust. The MTE itself must be sprayed to prevent air pollution until such a time where it can be compacted sufficiently to prevent dust from being blown away. Workers must wear appropriate Personal Protective Equipment (PPE) such as face masks and protective eyewear to prevent injury from high dust levels. Daily risk assessments are to be conducted by the current Safety officers and used to determine risks and necessary training. As both potential sites are situated within the power station, along existing access roads, the impacts are likely to be similar for either alternative. Direct impacts are described below, no cumulative or indirect impacts are foreseen for the project.

Potential direct impacts for each phase of the proposed MTE project are outlined below:

*1. Pre-Construction and construction impacts*

The construction of the proposed MTE would be a relatively short term process, involving the establishment of a contractor's yard, upgrade of access roads as required and clearing of the MTE footprint area and servitude. During the preconstruction phase, 350 000 m<sup>3</sup> of spoil material will be sourced from Pit 1 (the designated borrow area as shown in Appendix A). Potential impacts include:

- Air quality impacts from transporting spoil and from increased traffic on access roads;
- Destruction of flora and fauna within the footprint of the potential MTE;
- Pollution of watercourses from plan and equipment;
- Erosion of stripped areas leading to pollution and sedimentation of surrounding watercourses; and
- Obstruction of existing watercourses.

*2. Operational impacts*

The operational phase of the proposed MTE will take place over the course of 8 – 12 months following construction. This phase will involve continuous monitoring for the first four months, followed by weekly data collection from instruments once the site is established and the initial readings have been completed. Once the initial investigation is complete water will be injected into the MTE to saturate the ground below and measure the settlement profiles under settlement collapse. Potential impacts include:

- Dust generation from increased use of access roads;
- Dust generation from uncovered spoil material making up the MTE;
- Erosion of disturbed areas around the footprint and from the MTE itself contaminating surrounding watercourses;
- Runoff from water pumped into the MTE causing erosion and contamination of surrounding watercourses.

*3. Decommissioning Impacts*

Closure of the MTE may be triggered by two possible scenarios:

- Construction of the new ash disposal facility over the MTE site. In this case, the MTE is likely to be demolished as part of the earthworks preparations for the new dam's lining system.
- Rehabilitation - In the event that the new ash disposal facility is not constructed on the MTE site, the MTE is likely to be rehabilitated as part of the rehabilitation of the remaining areas of Pit 1. This would involve shaping the MTE to fit the contours of the surrounding area, and replacing the topsoil and plants removed during preconstruction and construction.

Potential impacts include:

- Contamination of topsoil by hazardous chemicals and other soils through improper handling and storage;
- Erosion of the area;
- Compaction of soil to leading to ineffective plant rehabilitation measures.

Reuse of hazardous waste

The spoil material to be used to construct the proposed MTE is from the same source as the rehabilitated spoil in the study site. It is unlikely that the reuse of the spoil would have appreciable impacts on the environment at either site.

Potential impacts include:

- Risk to health and safety of workers through inhalation of dust; and
- Contamination and siltation of watercourses.

No-Go Alternative

Direct Impacts

- No possibility of continued functioning of Kriel Power Station once existing facilities reach capacity;
- No research generated by the project;
- No effect on the proposed sites for the MTE; and
- No increased activity on site access roads;

Indirect Impacts

- Lack of research on soil settling profiles precludes the construction of future Ash Disposal Facilities;
- Lack of Ash Disposal Facilities substantially decreases the life of the Kriel Power Station;
- Increase in impacts from coal from surrounding collieries being sent further distances to other power stations; and
- No information generated to assist in the design of barrier systems for Ash Disposal Facilities, Slimes Dams or associated facilities that require an impermeable barrier layer.

Mitigation measures

- The only mitigation measure to prevent the indirect impacts of the no-go alternative is to proceed with the proposed MTE project.

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

## 2. 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.

### Technical comparison

Site B, the preferred site, is situated over the deepest spoil in the area (approximately 50 metres). This makes it a valuable source of information. The northern Site A alternative is situated closer to the spoil windrows which would reduce the cost of constructing the MTE, but the access roads in the area would require extending and maintenance which would increase the environmental impact of the project. A full technical comparison is outlined in the table below:

Technical comparison of site alternatives

Attribute	Preferred Site (B)	Alternative Site (A)
Depth of backfill	50 m	30 m
Distance to spoil windrows	1.8 km	150 m
Access	Easy access on existing roads	Roads require maintenance and/or extension
Distance to water source for abstraction during water injection phase	550 m	250 m

### Alternative A (preferred alternative)

Site B (the southern site) is the preferred option for the project. The impact of the proposed MTE will be minimal due to the already degraded condition of the site and that the spoil material used to build the MTE will come from the same source as the rehabilitated spoil of the area. With appropriate mitigation measures outlined in the attached EMPs, and particular attention paid to management of dust and erosion, any impacts will be minimal, short-term and easily managed.

	<i>Impacts</i>	<i>Duration</i>	<i>Likelihood</i>	<i>Significance</i>	<i>Mitigation possible</i>	<i>Significance with mitigation</i>
<b>Heritage</b>	None	N/A	low	low	yes	Minimal
<b>Ecology</b>	Direct	Short-term	Likely	Low	Yes	Low
<b>Aquatic</b>	Direct	Short-term	Likely	medium	yes	Low

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<b>Socio-economic</b>	Positive, indirect	Long-term	definite	high	N/A	high
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**Alternative B**

Alternative B consists of building the MTE at the northern site referred to as Site A. The negative environmental impact of using this option are slightly lower than for the preferred site, as there will be no encroachment on a wetland. This site consists of spoil that is significantly shallower than that of the preferred site and therefore the information gained by building the MTE on the northern site is likely to hold less value and information for future projects than if the MTE was built at site B.

	<i>Impacts</i>	<i>Duration</i>	<i>Likelihood</i>	<i>Significance</i>	<i>Mitigation possible</i>	<i>Significance with mitigation</i>
<b>Heritage</b>	None	N/A	low	low	yes	Minimal
<b>Ecology</b>	Direct	Short-term	Likely	Low	Yes	Low
<b>Aquatic</b>	Direct	Short-term	Likely	medium	yes	Low
<b>Socio-economic</b>	Positive, indirect	Long-term	definite	high	N/A	high

**Alternative C**

N/A

**No-go alternative (compulsory)**

The No-Go alternative will prevent the required research from taking place in order to enable the building of Ash Disposal Facilities at Kriel Power Station in Future. An application for authorisation for construction of a new Ash Disposal Facility is underway but this will not be possible without the information that will be gained from constructing and measuring the MTE. The No-Go option will prevent the construction of Ash Disposal Facilities in future, and this will lead to the power station being non-operational within the next decade. This, in turn will result in a reduction of power to the grid and the ensuing economic impacts as industries require electricity to enable growth and development.

	<i>Impacts</i>	<i>Duration</i>	<i>Likelihood</i>	<i>Significance</i>	<i>Mitigation possible</i>	<i>Significance with mitigation</i>
<b>Heritage</b>	None	N/A	-	-	-	N/A
<b>Ecology</b>	None	N/A	-	-	-	N/A
<b>Aquatic</b>	None	N/A	-	-	-	N/A
<b>Socio-economic</b>	Negative	Long-term	definite	high	no	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  
X

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).

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.

Mitigation measures are outlined in the attached EMPr (Appendix G). In brief, dust management and storm water control measures are crucial in minimising impacts. These measures are described in detail in the attached EMPr.

Is an EMPr attached?

YES  
X

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

\_\_\_\_\_  
NAME OF EAP

\_\_\_\_\_  
SIGNATURE OF EAP

\_\_\_\_\_  
DATE

## SECTION F: APPENDICES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

D1: Aquatic Assessment

D2: Ecological Assessment

D3: Heritage Assessment

D4: Waste Classification

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

J1: Letter from DEA confirming Downgrade to BAR

J2: Letter from DMR confirming no need for a Borrow Pit Application