ENVIRONMENTAL IMPACT ASSESSMENT:
PROPOSED EXTENSION OF ASH DAM FACILITY,
KRIEL POWER STATION, MPUMALANGA
DECEMBER 2010

SUMMARY DOCUMENT: DRAFT SCOPING REPORT

Eskom proposes to expand the existing ash dam facility at Kriel Power Station, Mpumalanga for the storage of coarse and fine ash produced by the burning of coal for the generation of electricity. The ash facility would consist of return water dams from where decant and drained water could be pumped back to the power station for re-use, delivery and return infrastructure, a liner system and/or water treatment facility and seepage and surface runoff collection trenches.

Background & Proposed Project

The Kriel Power Station is a coal fired power station owned by Eskom and makes use of wet process ashing to dispose of its ash. The power station produces coarse and fine ash from the process of burning coal for the generation of electricity. Coarse ash is crushed at the power station and transferred to sumps from where it is pumped to the ash dams together with the fine ash. The fine ash is also transported separately to the existing ash dams via a conveyor belt, while the coarse ash-fly ash mixture is pumped as slurry through a pipeline to the ash dams. Recently two of the three ash dams have reached their capacity, whereas the third ash dam would be reaching its capacity by 2016. Eskom is thus proposing to construct an additional ash facility that would fulfil ash disposal requirements for the remainder of the power station’s operational life, i.e. 2039, during which approximately 111.18 million $m^3$ of ash will be produced.

Site Selection and Screening Process

Eskom, through Aurecon, initiated an EIA process for the development of a new ash facility that would have sufficient capacity for the remaining operational life of the power station until 2039. While Eskom has indicated their preference, from a logistical/operational perspective, for a site identified by Jones and Wagener Consulting Engineers in 2006 to the south of the existing ash dam facility near the power station, all reasonable and feasible alternatives are being investigated thoroughly. As such, as part of the EIA process, the Aurecon EIA team, assisted by Eskom and Jones and Wagener, undertook the identification of potential sites within a 10 km radius of the Kriel Power Station, in order to ensure that the process could commence from a robust and defendable starting point.

Purpose of this document

This document provides a summary of the Draft Scoping Report (DSR) and Plan of Study for EIA for the proposed ash disposal facility at Kriel Power station, Mpumalanga. It provides a brief background and overview of the proposed project, a description of the public participation process undertaken thus far, the list of project alternatives and potential impacts (together with proposed specialist studies where applicable) that are proposed to be investigated further in the EIA phase.

In addition, you are also invited to attend a Public Meeting and Open House where the findings of the DSR will be presented and discussed on Thursday, 27 January 2011, 17h00-20h00 at the Methodist Church Hall, Kriel. Note that the formal meeting will only start at 18:00. An open day will be held between 17h00 and 18h00 whereby information from the Scoping Report will be on display (e.g. posters and maps), and the project team will be available to answer any questions. Earlier in the day, the project team will also meet with the authorities and landowners respectively to discuss the DSR. Separate invitations have been sent to all landowners. Should you wish to attend the Public meeting, please RSVP for further details.

Please review this Summary Document and, preferably, the full Scoping Report, and submit your comments on the proposed project by Friday, 18 February 2010. To comment, write a letter, call or e-mail the Public Participation office. All EIA documents will be available on the Eskom and Aurecon (Pty) Ltd (Aurecon) websites www.eskom.co.za/eia/Kriel ash facilities and www.aurecongroup.com follow the public participation links).

Queries about the EIA and/or Public Participation Process: Aurecon
Franci Gresse or Michael Mangnall
P O Box 494, Cape Town, 8000
Tel: (021) 481 2511
Fax: (021) 424 5588
Email: franci.gresse@af.aurecongroup.com
The process of identifying potential sites within the 10 km radius included a site visit to the Kriel Power Station, and various discussions and workshops with relevant Eskom personnel. The Department of Water Affairs’ Guideline on Minimum Requirements for Waste Disposal for Landfill Sites (2nd Edition, 1998) was also a key informant in the process. The key criteria from this guideline, which assisted in the identification of potential environmental impacts and to inform specialist investigations, include:

- potential to pollute surface and ground water resources;
- stability issues;
- sensitive environmental features;
- landscape characteristics;
- surrounding land use;
- air quality;
- distance of site from waste source; and
- visual aesthetics.

During the site selection process, potential candidate areas within the study area were identified by considering a range of potential technical, financial and environmental criteria, which included:

- location of coal resources and undermined areas; and
- existing infrastructure.

As a result, four potential areas were identified, which were subjected to further screening according to various technical, financial and environmental criteria, including:

- ash facility design and operating requirements;
- cost of new infrastructure;
- hydrological features;
- geotechnical considerations; and
- sensitive environmental features.

Consequently, three of the four sites have been identified for further investigation in the EIA Phase, i.e. Sites 10, 16 North (16N) and 17. These sites were selected for the following reasons:

- Site 10: Previous investigations completed in 2002 on the hydrology of this site indicated that a desalination plant could be established to treat and improve the existing water quality. Furthermore, this site is disturbed and not a greenfields site.
- Sites 16N and 17: More favourable than Site 10 in terms of geotechnical stability and groundwater pollution risks.

Please refer to Figure 1 for the location of the three potential sites identified for further investigation.

**Site description**

**Site 10** overlies a backfilled open cast mine pit (Pit 1) and is bordered by the backfilled Kriel Colliery open cast mine pit, Pit 1, to the east. The Provincial Road R547 (Evander-Kriel) is located to the south, Matla Power Station to the west and the Kriel Power Station to the north.

**Site 16N** overlies natural ground and is bordered by the Steenkool River to the east, agricultural land and a valley ridge to the north and south and to the west agricultural land that is underlain by the Kriel Colliery Coal fields. The site is partly used for agriculture purposes.
Figure 1: Location of the Kriel Power Station and proposed sites
**Site 17** is located to the northwest of the power station on Farms Rietvlei 62, Vierfontein 61 and Nooitgedacht 37. The site is currently used for agricultural activities and is bordered by agricultural land on all sides. To the east the R545 (regional road from Ogies to Bethal) is located and to the southeast the Matla Colliery.

**Scoping Process in terms of EIA Regulations**

In terms of the National Environmental Management Act (No. 107 of 1998) (as amended) (NEMA), the proposed development triggers a suite of activities, which require authorisation from the competent environmental authority, the Department of Environmental Affairs (DEA), before they can be undertaken.

Furthermore, the National Environmental Management: Waste Act (No. 59 of 2008) (NEMWA) provides various measures for the prevention of pollution and ecological degradation, as well as for ecologically sustainable development in order to protect human health and the environment. In this regard, NEMWA identifies and lists certain activities which require environmental authorisation through the NEMA Environmental Impact Assessment (EIA) and waste management licensing processes, prior to commencement of those activities.

**EIA Process**

The EIA process consists of an Initial Application Phase, a Scoping Phase and an EIA Phase. The purpose of the Initial Application Phase is to commence the project via the submission of the relevant departments’ application forms. The purpose of the Scoping Phase is to identify and describe potential positive and negative environmental impacts, (both social and biophysical), associated with the proposed project and to screen feasible alternatives to consider in further detail.

The purpose of the EIA Phase is to comprehensively investigate and assess those alternatives and impacts identified in the Scoping Report and propose mitigation to minimise negative impacts.

The acceptance of the Scoping Report and the Plan of Study for EIA by DEA would allow the process to continue to the EIA phase.

The EIA process will integrate the requirements for both the environmental authorisation and waste management license.

**Public Participation Process - How can you get involved?**

Public participation is a key component of this EIA process and will take place at various stages throughout the project. The public participation process to date has involved the following aspects:

- Advertising the proposed project in the regional (Die Beeld) and local newspapers (The Ridge Times and The Echo) to initiate the EIA process and invite the public to register as Interested and Affected Parties (I&APs) (26 March 2010 until 28 April 2010);
- Distribution of background information letters and response forms to I&APs on 26 March 2010, including a mail drop on 31 March and 1 April 2010; and
- Placement of posters at the Kriel Power Station, Matla Power Station, local municipal offices, Mica hardware store, Kriel Colliery and the Exxaro offices at Matla.

**Issues raised to date:**
Comments received from I&APs during the Initial EIA Phase relate to the following issues:

- Water pollution
- Air quality
• Impact on agriculture
• I&AP database
• Heritage assessment requirements

All written comments received are included as an annexure to the Draft Scoping Report (DSR). All issues raised via written correspondence have been summarised into a Comments and Response Report with responses from the project team and are included as an annexure to the DSR.

Project alternatives

The following feasible alternatives have been identified for further consideration in the Environmental Impact Assessment Report (EIAR):

• Activity alternatives:
  - Wet ashing;
  - Dry ash stacking;
  - Combination of wet ashing and dry ash stacking; and
  - “No-go” alternative.
• Location alternatives:
  - Three locations for the proposed ash dam, i.e.
    - Site 10 (unrehabilitated open cast pit);
    - Site 16N (greenfields site); and
    - Site 17 (greenfields site).
• Site layout alternatives:
  - One layout per location.

Identified potential impacts

The proposed ash facility can impact on a range of biophysical and socio-economic aspects of the environment. Impacts can result from the construction phase as well as the operational phase. While the construction phase impacts are usually short term, some may have longer lasting effects, such as if the groundwater is polluted. A construction phase Environmental Management Plan (EMP) will be compiled to be implemented during the construction phase to manage these aspects.

The operational phase impacts are usually considered to be the long term impacts associated with the project and these will be considered by a suite of specialists during the EIR phase. The specialists will also consider ways to manage these potential impacts and these mitigation measures will be included in an operational phase EMP.

Because each of the components of the proposed ash facility can have a range of impacts on the environment, a number of specialists have been tasked with investigating certain aspects which require more detailed investigation. Specialists have been appointed to investigate the following:

Terrestrial ecology
The proposed ash facility and associated infrastructure could potentially destroy and/or disturb habitat that may be important for biodiversity and ecosystem processes.

Aquatic ecology
Habitat that may be important for aquatic biodiversity and ecosystem processes may be destroyed during the construction process.
Groundwater
Groundwater pollution may not only have a negative impact on the water resources, fauna and flora, but also on agricultural productivity and income. Furthermore, there is also the possibility of collapse settlements in the foundations at Site 10 that may pose significant risks in terms of environmental (groundwater in particular) pollution should the correct measures not be in place.

Air Quality
Various sectors contribute to the poor ambient air quality of the Mpumalanga Highveld region, for example: industry, vehicle tailpipe emissions, household fuel combustion and biomass burning. The impact on air quality from the proposed ash facility would be additional to the existing poor ambient air quality of the region, as well as sensitive receptors such as the town of Kriel and surrounding settlements.

Visual
Two of the proposed sites (16N and 17) are used for agricultural purposes and would have a significant visual impact on the surrounding landscape. Site 10 is however adjacent to the existing Kriel ash dam complex and, as such, would limit the visual footprint of the proposed ash facility.

Heritage resources
Due to the historical disturbances at the proposed sites (construction of the power station, opencast mine, ash dams and agricultural practices) it is unlikely that archaeological or cultural material would be found on site. However, the potential remains that the ash facility, and associated pipelines, could impact on heritage resources.

Noise
The Kriel colliery and power station are the largest source of noise pollution in the area, together with the ash conveyors and other activities on site. The potential exists for the ambient noise levels to increase due to the operations of the proposed ash facility.

Surrounding Land Uses
The ash facility is unlikely to have a significant negative impact on coal mining and power situation. This impact is however of particular importance to those farmers who are currently operating on properties which are being considered as potentially suitable for the proposed ash facility, viz. Site 16N and 17.

Traffic
The proposed project is likely to result in a limited increase in traffic volumes during the construction and operational phase of the project should the ash facility be located at Site 16N. However, should the ash facility be located at Site 17, it may be necessary to re-align local dirt roads and/or upgrade the existing road network.

Existing infrastructure and services
It is unlikely that existing infrastructure and services in the surrounding area of the Kriel Power Station will be impacted. However the possibility of collapse settlements in the foundations of Site 10 could pose significant risks in terms of environmental (groundwater in particular) pollution, as well as the operation of surrounding ashing facilities and mines.

The following specialist studies and specialists will be commissioned to provide more detailed information on those environmental impacts which have been identified as potentially being of most concern, and/or where insufficient information is available, namely:

<table>
<thead>
<tr>
<th>Study</th>
<th>Consultant and Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrestrial ecology assessment</td>
<td>Dr Brian Colloty, Scherman Colloty and Associates</td>
</tr>
<tr>
<td>Aquatic ecology assessment</td>
<td>Dr Brian Colloty, Scherman Colloty and Associates</td>
</tr>
<tr>
<td>Groundwater assessment</td>
<td>Mr Louis Stroebel, Aurecon</td>
</tr>
<tr>
<td>Geotechnical impact assessment</td>
<td>Mr Anton Bain, Jones and Wagener Consulting Engineers</td>
</tr>
<tr>
<td>Air quality impact assessment</td>
<td>Ms Renee von Gruenewaldt, Airshed Planning Professionals</td>
</tr>
<tr>
<td>Visual impact assessment</td>
<td>Ms Marni Punt, Aurecon</td>
</tr>
</tbody>
</table>
## Study Consultant and Organisation

<table>
<thead>
<tr>
<th>Study</th>
<th>Consultant and Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heritage impact assessment</td>
<td>Mr Polke Birkholtz, Professional Grave Solutions: Heritage Unit</td>
</tr>
<tr>
<td>Noise impact assessment</td>
<td>Mr Derek Cosjin, Jongens Keet Associates</td>
</tr>
<tr>
<td>Agricultural / Land capability impact assessment</td>
<td>Mr Paul Vermaak, Aurecon</td>
</tr>
<tr>
<td>Traffic impact assessment</td>
<td>Ms Nicolene Wattel, Aurecon</td>
</tr>
</tbody>
</table>

**Way forward**

Copies of the DSR have been lodged on Eskom’s and Aurecon’s website ([www.eskom.co.za/eia/](http://www.eskom.co.za/eia/) and [www.aurecongroup.com](http://www.aurecongroup.com) (follow the public participation link)), the Kriel Public Library in Kriel, and the security centre at Kriel Power Station.

You are also invited to attend a Public Meeting and Open House where the findings of the DSR will be presented and discussed on **Thursday, 27 January 2011, 17h00-20h00** at the **Methodist Church Hall, Kriel**. Note that the formal meeting will only start at **18h00**. An Open Day will be held between 17h00 and 18h00 whereby information from the Scoping Report is on view (e.g. posters and maps), and the project team is available to answer questions. Earlier in the day, the project team will also meet with the authorities and landowners respectively to discuss the DSR. Separate invitations have been sent to all landowners. Should you wish to attend the Public meeting, please RSVP for further details.

I&APs have until **18 February 2011** to submit their written comments on the DSR to Aurecon.

Cognisance will be taken of all comments when compiling the Final Scoping Report (FSR), and comments, together with the project team’s responses, will be included in a Comments Response Report (II) as an annexure in the final report. The FSR will be submitted to DEA who will either reject the application or instruct the applicant to proceed to the EIA Phase, either as proposed in the Plan of Study for EIA, or require that amendments be made to the Scoping Report and/or Plan of Study for EIA before continuing.
Aurecon Contact Details
Franci Gresse / Michael Mangnall
Tel: (021) 481 2501
Fax: (021) 424 5588
Email: franci.gresse@af.aurecongroup.com

Aurecon
PO Box 494 Cape Town 8000

List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEA</td>
<td>Department of Environmental Affairs</td>
</tr>
<tr>
<td>DSR</td>
<td>Draft Scoping Report</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EIAR</td>
<td>Environmental Impact Assessment Report</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>FSR</td>
<td>Final Scoping Report</td>
</tr>
<tr>
<td>I&amp;AP</td>
<td>Interested and Affected Party</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environmental Management Act</td>
</tr>
<tr>
<td>NEMWA</td>
<td>National Environmental Management: Waste Act</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL IMPACT ASSESSMENT:
PROPOSED EXTENSION OF THE ASH DAM FACILITY AT KRIEL POWER
STATION, MPUMALANGA
DECEMBER 2010

Response Form for comment by I&APs

Please return this page to Aurecon via fax, post or email by 18 February 2011.

Attention: Franci Gresse / Michael Mangnall
Tel No: (021) 481 2501 Fax No: (021) 424 5588
Email: franci.gresse@af.aurecongroup.com
Postal Address: PO Box 494, Cape Town, 8000

Please list any colleagues/friends or organisations that you feel should also be registered as an I&AP for this EIA:
(with contact details if available)

<table>
<thead>
<tr>
<th>Name/ Organisation</th>
<th>Postal Address</th>
<th>Tel No.</th>
<th>Fax No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please comment on any issues or concerns you may have:
(please use a separate sheet if you wish)

........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

In terms of GNR 385 Section 58(1)(c) (EIA process regulations) I disclose below any direct business, financial, personal or other interest that I may have in the approval or refusal of the application:
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

Thank you for your comments