

DEPARTMENT OF WATER AFFAIRS

 M. Groenewald



groenewaldm2@dwa.gov.za



012-336-8422

Directorate: Resource Protection & Waste – Source Co-Ordination



16/2/7/B100/B585/Y1

DEPUTY DIRECTOR: SOURCE CO-ORDINATION:

DWA – National Office

PRETORIA

Attention: M Noe

Tel: 012 336 7639

RE: KHANYISA COAL FIRED POWER STATION WASTE LICENSE APPLICATION

Your request for comment/recommendation regarding groundwater issues at Khanyisa Coal Fired Power Station, Emalahleni, Mpumalanga dated 3 October 2012 has reference.

Referenced Documents Submitted:

- a. Final Environmental Impact Report for Khanyisa Coal Fired Power Station, Emalahleni, Mpumalanga
Dated: 23 March 2012
Report No: 5920

b. Draft Environmental & Social Impact Report

Dated: October 2011

Report No. 5672 Volume 2, 3 and 4

The following has been noted in the above-mentioned supporting documents/reports submitted to this office:

1. Geohydrological assessment of the water use activity/impact

Aspects in terms of geohydrological conditions on site	Indicator
a. A Geohydrological investigation has been conducted	Yes by Aurecon August 2011
b. A geophysical investigation has been conducted	Yes but the site locality had been changed to be built on a rehabilitated opencast mine area
c. Receiving aquifer is a Dolomitic Aquifer System	<u>Fractured Ecca aquifer</u>
d. Major/minor aquifer	<u>Minor aquifer system with a high probability of getting polluted due to the high permeability of the backfill material and needs high groundwater protection</u>
e. Hydrogeology at site: Structural geological features (Faults, dykes, etc.)	None had been provided
f. Current status of groundwater quality on site	Groundwater is impacted and polluted by mining activities
g. Groundwater pollution potential	High due to fatal flaws of undermining and rehabilitation of an opencast mine
h. Groundwater model carried out as part of assessment	Yes

i. Possible impact on down-gradient resources	Yes, Olifants River Catchment which is already stressed
j. Geology situation well studied	No, need to do geochemical investigations to determine the leachate
k. Hydrogeology required	No
l. More intensive groundwater investigation required	Yes, geochemical studies
m. Surrounding groundwater users potentially impacted	No groundwater users in the immediate vicinity of the site but downstream however
n. Critical issues:	
<ul style="list-style-type: none"> • Minor aquifer system with a high probability of getting polluted due to the high permeability of the backfill material and needs high groundwater protection • Hydraulic permeability bedrock = 0.01 m/d • Hydraulic permeability rehabilitated area = 100m/d6 • Hydraulic permeability of the ash dump = 0.2 m/d 	

2. Groundwater Monitoring Program

Important issues	Indicator
a. Monitoring program exists	Yes
b. Acceptable monitoring program presented	No, need to relocate the Ash dam
h. Historical Groundwater monitoring data presented	Yes groundwater data had been presented and show groundwater had been polluted by mining activities
i. Monitoring record sufficient and complete	Yes

1. Critical issues:	Need to determine alternative site due to fatal flaws
---------------------	---

Engineering

- | | | | |
|----|-------------------------------|---|--|
| 1. | Size: Ash disposal facility | 186 ha | 25 Years |
| | Temporary storage of effluent | | To be determined by the ELA process. Effluent will be treated in a closed system with no intended environmental outflows |
| 2. | Waste Quantities | | |
| 3. | Geology: | Shale and sandstone of Karoo Super Group | |
| 4. | Fatal flaw: | Within the drainage area or within 5 km of a water source | |

Recommendation

- a. Outstanding requirements
 - Kinetic leach testing on fly ash and coal discard separately to determine what will leach out.
 - Determine the relationship of coal discard and fly ash which will be disposed of and do Kinetic leach tests
 - Need to do geochemical studies to determine the leachate from the combined material (fly ash and coal discard)
- b. Can water use activity as requested proceed

No the Ash Dam 3 need to be relocated to an area which is not undermined and not located on top of a rehabilitated open cast mine.
- c. Recommendations/ comments
 - Add Gypsum and mercury to the quarterly list of constituents that they suggest for monitoring

- * We need the inputs of a DWA engineer as pillars are still to be mined out which will cause subsidence and can damage the liner at a later stage.
- * The DWA engineer need to approve the liner as well as the stability of the surface due to subsidence that might occur
- Leachate test need to be done for coal discard and fly ash that will be disposed (Kinetic) to determine the impact on the environment.
- The Olifants River will be polluted due to leachate. The Olifants River Catchment is already stressed therefore the groundwater forms an important recharge mechanism to the baseflow of this system and can not further be contaminated cumulatively therefore any material that is stored on surface must be contained in such a manner that it cannot leach into the groundwater system.
- * The site locality is regarded as a fatal flaw due to undermining and backfilling of an open cast mine. The DWA engineer need to comment on this
- No geochemical studies had been done on Ash regarding leachate
- See that water being used for dust suppression adhere to the correct standards
- Lime treatment is only looking after pH balancing, but the salts is still high and need to be addressed in the mitigation measures to keep groundwater pollution as little as possible.
- Although aquifer had been classified as a minor aquifer the DWA see this as an important aquifer as the baseflow feeds into the Olifants River Catchment which is already stressed.

MARTSA COOPERATION
6801/47/01/001 ST
DIRECTORATE: Resource Protection and Waste
SMB-DIRECTORATE: SOURCE CO-ORDINATION
DATE: 27 November 2012



water affairs

Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X313, Pretoria, ZwaMadaka Building, 157 Schoeman Street, Pretoria
Tel: (012) 336-7500, Fax: (012) 323-0321, www.dwa.gov.za

F - ☎ (012) 323 0321

E - ✉ noem@dwa.gov.za

✉ Malise Noe

☎ (012) 336 7639

📁 16/2/7/B100/B585/Y1

Department of Environmental Affairs
Private Bag X447
Pretoria
0001

ATTENTION: Director Authorisations and Waste Disposal Management

CALL FOR ADDITIONAL INFORMATION: RE-EVALUATION OF LICENCE APPLICATION FOR THE KHANYISA COAL POWER STATION IN EMALAHLENI, MPUMALANGA IN TERMS OF SECTION 50 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 – MPUMALANGA PROVINCE.

The request for a Record of Decision (RoD) for a licence application for the Khanyisa Coal Fired Power Station, received on 27 August 2012 refers.

In order for this Department to provide you with meaningful comments it is recommended that the applicant submit the requested information mentioned below in hard copies not in a CD.

- The Waste Licence application form.
- Annexures of Specialist Reports. DWA has just received Volume 1 of 4.

Should you have any other queries please do not hesitate to contact this office.

Wilna Moolman
Mr. Maxwell Sirenya
DIRECTOR-GENERAL
Letter signed by Wilna Moolman
Designation: Control Environmental Officer
Date: 07 September 2012

Received by Dept on
27/8/2012



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X 447, PRETORIA, 0001 - Fedsure Building, 315 Pretorius Street, PRETORIA

Ref No.: 12/12/20/2067

Enquiries: Mr. Lucas Mahlangu

Tel: (012) 310 3536 Fax: (012) 310 3142. Email: lmahlangu@environment.gov.za

www.environment.gov.za

Ms. Deborah Mochithi
Chief Director. Water Use
Department of Water Affairs
Private Bag X 313
PRETORIA
0001

Dear Ms. Mochithi

REQUEST FOR ADDITIONAL INFORMATION FOR KHANYISA COAL FIRED POWER STATION

Kindly find the additional information for Khanyisa Coal Fired Power Station as per your request (1 Disc).

Appreciation is expressed in advance for your assistance

Yours sincerely

Ms Nolwazi Cobbinah

Acting Deputy Director-General: Chemicals and Waste Management

Letter signed by: Ms Tsakani Sambo

Designation: Senior Administrative Officer: Systems Management

Date: 21 August 2012