

CHIEF DIRECTOR: REGULATION

For attention Director: Resource Protection and Waste, and Ms W Moolman

NEMWA WASTE LICENCE: ENGINEERING SERVICES COMMENT: KUSILE POWER STATION: SETTLING TANK, ASH AND GYPSUM CO-DISPOSAL, ASH DUMP DIRTY WATER DAM, 60 YEAR ASH DUMP AND LINER RECORD OF DECISION

1. Presentation

On Thursday 14 November 2013 at 09h00 the project background and detail were presented by Mr T Breedt of Eskom and Ms A Morgan from KET under the auspices of Ms W Moolman. This is further to the discussion of 16 May 2013 meeting for which minutes have been received from Eskom. Furthermore, this scheduled one hour meeting was split at Eskom's request to assist its coal supplier with a design review.

2. Documentation

The following reports, drawings and correspondence were presented for consideration:

- a) Notes from Mr L Stapelberg covering all previous meetings with DWA and Kusile Power Station dated 14 November 2013.
- b) A total of about 200 signed drawings for the Settling Tank Design, Ash and Gypsum Co-disposal, Ash Dirty Water Dam, 60 year Ash Dump and Liner RoD.
- c) Minutes of the meeting sent by e-mail on 21 November 2013 by Mr T Breedt.

3. Consideration

It is confirmed that there is common agreement on the principles and technology applied in the review of engineering designs for pollution control facilities associated with barrier systems. The review is in pursuit of a recommendation with respect to containment standards compliance in support of water use and waste licence applications and does not usurp responsibility of the applicant nor design engineer in any way and the stability of structures remains the responsibility of the design engineer.

- a) Settling Tank Liner - attachment of secondary liner to the key wall is by batton which

is accepted provided signed drawings are placed on record with DWA.

- b) Ash and Gypsum co-disposal hazardous waste revised drawings (following the March consideration).
- i) The 15% area now incorporates an additional Composite liner over the previous double GM lined area.
 - ii) The remainder of the area fulfils the requirements for a double composite liner with primary liner GM/GCL and secondary liner as GM/CCL with both LCS and LDS.

It is acknowledged that thermocouple instillation and primary GM temperature monitoring and recording is still a condition, and the applicant is advised of cation exchange.

c) Ash Dump Dirty Water Dam – The amended ash dump dirty water dam design reflects a secondary composite liner GM/GCL followed by cusped GD and primary GM liner which is protected by both a 50mm screed layer of unreinforced concrete and a reinforced concrete slab which allows trafficking for cleaning. This fulfils the requirement for the PCD containing potentially polluted storm water runoff (not leachate).

d) The 60 Year Ash Dump –

The 60 year ash dump design was addressed by Jones and Wagener Consulting Engineers in an earlier meeting.

e) Liner Record of Decision – this Record of Eskom design recommendations/approval was received a day prior to the meeting and is to be checked in due course.

4. Recommendation

It is recommended that the design of the facilities listed above be accepted for the waste licence, and that the Eskom Record of acceptance be ratified under separate letter.


PP **ACTING CHIEF DIRECTOR: ENGINEERING SERVICES**

Letter signed by KR Legge

Chief Engineer: Integrated Environmental Engineering

Date 22/11/2013

Attachments: List of Acronyms

Paper by de Silva and Shamrock of temperature

ACCRONYMS USED IN WATER USE AND WASTE LICENCE CONSIDERATIONS

CCL -Compacted Clay Liner
GCL – Geosynthetic Clay Liner
GM – Geomembrane
GT – Geotextile
GD – Geodrain
GN – Geonet

HDPE – High Density Polyethylene
LLDPE – Linear Low Density Polyethylene
PVC – Poly Vinyl Chloride
PP – Polypropylene
PET – Polyester

PCD – Pollution Control Dam
FSL – Full Supply Level
NOC – Non Overspill Crest
NGL – Natural Ground Level
GWL – Ground Water Level
LCS – Leachate Collection System
LDS – Leak Detection System
ROM – Run of Mine
TSF – Tailings Storage Facility
1v:4h – 1 vertical in 4 horizontal slope
1:100yr – 1 in 100 year return period event
Rf – Rain Fall
MAR – Mean Annual Runoff
SEF – Safety Evaluation Flood
PMF – Probable Maximum Flood
Slunits – Standard International Units
PrEng – Professional Engineer as defined by Act 46 of 2000

NWA – National Water Act, Act 36 of 1998
NEMA – National Environmental Management Act, Act 107 of 1998
NEMWA – National Environmental Management Waste Act, Act 59 of 2008
PAJA – Public Administrative Justice Act, Act 3 of 2000
PFMA – Public Finance Management Act, Act 1 of 1999
MR2 – Minimum Requirements for Waste Disposal by Landfill, 2nd Edition, 1998
NEMWA Regs 2013 – Norms and Standards for Disposal of Waste to Landfill R636 of 23 August 2013

DWA – Department of Water Affairs
DEA – Department of Environmental Affairs
DMR – Department of Mineral Resources

MSW – Municipal Solid Waste
H:H – High Hazard
H:h - Low Hazard
G:L/M/S: B+/- - General Waste: Large/Medium/Small site: Water Balance positive/negative

DWA ENGINEERING SERVICES REVIEW OF LICENCE APPLICATIONS

Date: 14 November 2013

Time: 09:00 to 10:00

Subject (Project): NEMWA – Kusile Power Station

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